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TABLE OF CONTENTS

Scrub Typhus as a War Disease Sir JOHN MEGAW, D.SC., M.B. 109

Scrub Typhus: A Clinical Study M. C. MENON, M.B., and COLIN IBBOTSON, M.B. 112

Effects of Mechanical Stresses on Man B. H. C. MATTHEWS, SC.D., F.R.S. 114

Peripheral Arterial Embolectomy PHILIP HOPKINS, M.R.C.S. 117

High-colour-index Anaemia due to Vitamin C Deficiency B. GOTTLIEB, M.D. 119

A Tropical Dietary W. E. MCCULLOCH, M.D. 127

MEDICAL MEMORANDA

Treatment of Human Cutaneous Anthrax with Penicillin. H. STOTT, M.B. 120

GENERAL ARTICLES AND NEWS

East of Suez. G. R. MCROBERT, M.D. 128

London's Hospital Problems: Report by the King's Fund 130

Drilling the Glenoid in Operation for Recurrent Dislocation of Shoulder. P. B. MORONEY, F.R.C.S. 122

USE OF THE TITLE "NURSE" 130

EVACUATION OF CASUALTIES BY AIR 130

THE SERVICES 132

UNIVERSITIES AND COLLEGES 139

MEDICAL NEWS 139

REVIEWS

Differential Diagnosis 121

Neurology 121

Foster Homes for Mental Patients 121

Notes on Books 121

REPORTS OF SOCIETIES

MEDICAL OFFICERS OF HEALTH: Infectious Diseases in Children 131

OBITUARY

Sir W. Girling Ball, F.R.C.S. 138

Prof. Achard 139

MEDICO-LEGAL

The Young Offender 137

LEADING ARTICLES

Problems of Aviation Medicine 123

Nutrition in Newfoundland 124

Fifty Thousand Members 125

ANNOTATIONS

Histoplasmosis 125

Help for the Deaf 126

The *I.A.M.C. Journal* 126

LETTERS AND ANSWERS

Binocular and Monocular Vision—Shock and Haematemesis—Diphtheria Inoculation of Allergic Subject—Colostomy for Cancer of Rectum—Parathyroids and Calcium—Fitting Smith-Hodge Pessary—A Swallowed Button—Value of a Drug—Climate and Tuberculosis—Intestinal Antiseptics—Income Tax—Patulin *et al.*—Epilepsy and Menstruation—Sterilizing Paraldehyde—Fate of a Threepenny Bit—Persistent Occipito-posterior Presentations—Injection for Plantar Warts—Chloroform Anaesthesia—Acupuncture—Resuscitation after Drowning—Relief of Tinnitus—Sculling for One-armed Men—Ergot and Abortion—Fluorine in Toothpaste—Reviving the Newborn—Local Sulphonamide Therapy 141-4

SUPPLEMENT

Heard at Headquarters 15

General Medical Council 16

CORRESPONDENCE 17

H.M. FORCES APPOINTMENTS 20

CORRESPONDENCE

Penicillin in Bacterial Endocarditis. R. V. CHRISTIE, M.D. 132

Masking Syphilis with Penicillin. W. R. SCOTT COWE, M.B. 133

Saline, Sulphaguanidine, and the Amoeba. G. A. RANSOME, M.R.C.P., and J. F. STOKES, M.R.C.P. 133

Excision of Patella. A. G. TIMBRELL FISHER, F.R.C.S. 133

March Fracture. Sir G. LENTHAL CHEATLE, F.R.C.S. 134

Effort Syndrome in West African Soldiers. M. D. W. ELPHINSTONE 134

Re-employment of the Consumptive. W. H. TATTERSALL, M.B. 134

Day Nurseries. F. GRAY, M.B. 135

Hydatid Disease of the Lung. J. G. EDWARDS, F.R.A.C.P. 135

Human Creeping Myiasis. D. F. MCCARTHY, M.D. 135

Training of the G.P. J. MACLEOD, M.D. 135

Weight Reduction by Dieting 136

Alien Doctors. J. R. REES, M.D.; M. GANG, M.R.C.S. 136

Newspaper Publicity. R. E. HEMPHILL, M.D. 137

Epidemiology Section 140

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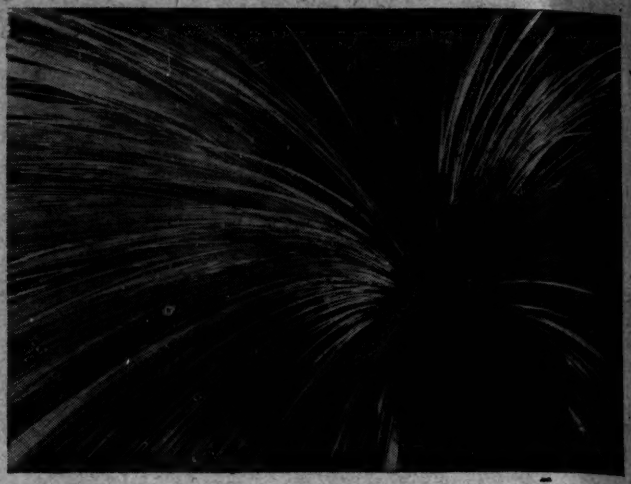

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 28 1945

SCRUB TYPHUS AS A WAR DISEASE

BY

Major-General Sir JOHN W. D. MEGAW, K.C.I.E., D.Sc., M.B.

When a request was received for a short article on certain aspects of scrub typhus it occurred to me that an outline sketch of some of the chief features of the disease might be useful to medical officers serving in the East. The following notes consist largely of impressions resulting from a study of reports of a considerable number of outbreaks that have occurred during the present war; no mention is made of the names of the authors, partly because several of the reports have not been published, and partly because detailed references would be out of place in an article of so limited a scope.

Relationship of Scrub Typhus to the other Typhus Fevers

A clear mental picture of scrub typhus can most easily be obtained by looking first of all at its relationship to the other typhus fevers, which it closely resembles in aetiology, pathology, symptomatology, and treatment. In these respects all the typhus fevers conform so closely to the same basic pattern that those who know any one of the diseases need pay attention only to the few points in which they differ from each other. But while in the above aspects the typhus fevers form a unitary group, scrub typhus and flea-borne and tick-borne typhus differ so sharply from classical louse-borne typhus in the epidemiological conditions in which they are transmitted to man that they must be placed in a separate subgroup. Louse-borne typhus, being transmitted from man to man by human lice, is a purely human or "demic" disease, so that, in prevention, infected persons and the lice by which they are infested are the chief concern. Scrub typhus—better named "mite-borne typhus"—together with flea-borne and tick-borne typhus, is primarily a disease of lower animals, or a "zootic" disease, and infection is transmitted to man as a secondary incident, so that measures of control are directed against the infected animals and the arthropod vectors which habitually feed on them. For all practical purposes the possibility of transmission of the zootic typhus fevers from an infected person to a contact can be left out of account.

In its epidemiology scrub typhus is more closely related to tick-borne than to flea-borne typhus, whose animal reservoirs live in association with human habitations, whereas the reservoirs of the other two diseases exist chiefly in rural and sylvan areas away from human dwellings. The resemblances between the fevers of the group are suggested by the name "typhus"; so, also, the differences are associated with the arthropod vectors and can most suitably be suggested by a nomenclature based on the names of the vectors. Mite typhus would be a more suitable name than scrub typhus, which implies that the disease is restricted to scrub country and which might even suggest that mite-borne typhus is the only typhus fever likely to be encountered in scrub areas.

Some Special Features of Scrub Typhus

Synonyms and History.—Although the name scrub typhus is of recent origin the disease was described in the third century by a Chinese writer, who attributed it to the bite of a "small red insect," presumably a mite. The classical form of the disease—tsutsugamushi ("small insect") disease—has been well known in Japan for many years, but the widespread distribution of the fever in the East was not realized till a few years ago because in outbreaks outside Japanese territory the local lesion called the "eschar" was seldom present, and as this was described as an essential feature of tsutsugamushi disease these outbreaks were regarded as being due to "new" fevers, to which many different names were applied. The eschar is now known to be a fortuitous feature, and all the mite-borne typhus fevers are the same as tsutsugamushi disease.

Definition.—Scrub typhus is the fever of the typhus group that is transmitted to man by a mite.

Geographical Distribution.—The disease is suspected of occurring sporadically in the north-eastern parts of Africa, but its definitely known range of distribution is confined to southern and eastern Asia, northern Australia, the islands adjoining these regions, and the Pacific islands. There is therefore a remarkably close association between the distribution of the disease and the areas in the East concerned with the operations of the war against Japan. In India, Ceylon, and the whole eastern theatre of war the disease can be expected to occur; the most dangerous areas are in South-East Asia and the South-West Pacific, where epidemiological conditions are specially favourable for the existence of infection.

Importance of the Disease.—Up to the outbreak of the Japanese War scrub typhus was not of great importance except to labour forces in certain localities. Most of the affected areas were sparsely inhabited and the indigenous populations were largely immune owing to attacks in childhood, so that nearly all the observed cases in these places occurred among the few persons who entered them from outside. Military preparations and operations introduced new conditions: large bodies of troops began to enter the infected areas, and outbreaks, sometimes reaching epidemic proportions, began to occur. Scrub typhus is now regarded as one of the major risks to life and military efficiency in the greater part of the war zone, and it has been found necessary to take drastic steps for its control. In one case hundreds of troops became infected after military exercises lasting a few days in an area where the very existence of the disease had hardly been suspected; in another a large proportion of the staff of a freshly established military hospital were attacked within a short time. Apart from the fatality rate, which may be anything from 1 to 20%, the average period of invalidity is more than three months, so it is not surprising that the disease is being attacked with great energy.

The Cause.—This is *Rickettsia tsutsugamushi,* also called *R. orientalis,* which is closely related to the other typhus rickettsiae in its morphological and cultural characters as well as in the pathological effects produced in the body; the chief difference between the organism and the related rickettsiae consists in the absence of a high degree of cross-immunity after infection.

Transmission of Infection.—The vector is a microscopic larval trombiculid mite; *Trombicula akamushi, Tr. deliensis,* and several other species are known or believed to be capable of transmitting infection from animal to animal and from animal to man. These mites bite only once during their lifetime, in the larval stage, so that the same mite cannot both acquire and transmit infection. What happens is that a mite infected by a blood meal can transmit infection through the egg to its off-

spring, which can introduce the rickettsiae into any animal or human being on which they feed. This peculiarity in the life history of the mites has an important bearing on the methods of controlling the disease. The destruction of rats or other reservoirs of infection cannot have much immediate influence in stamping out infection; it may even increase the risk to human beings by depriving the larvae of access to their usual hosts. The mites and the animals from which they derive their infection are most plentiful in places where the ground is damp and covered with grass and other vegetation. Grass, which grows to a great height in the Tropics, is specially liable to infestation; swampy ground, scrub land, and places in which palm trees grow often swarm with the mites. Such places are usually situated near the sea, rivers, streams, or lakes. In dry places and during dry periods of the year the mites are not so active. Infection is often restricted to well-defined areas, but unfortunately it is seldom possible to judge by inspection which places are safe and which are dangerous. Persons who enter mite-infested areas are not likely to be bitten so long as they keep on the move, but the moment they sit or lie down, or even stand still, the mites are attracted and seek out a suitable part of the skin on which to feed. Any part of the body may be bitten, but the favoured sites are those bathed in perspiration and protected from disturbance by friction caused by the clothing. Such parts as the groins, scrotum, axillae, and neck are especially liable to be bitten. The mites when undisturbed remain attached for about two days; they seldom cause pain or irritation, and often the victim does not know that he has been attacked.

Reservoirs of Infection.—Rats and mice are the animals chiefly concerned in maintaining infection among the mites. The complete chain of transmission has only once been clearly demonstrated, but there is convincing circumstantial evidence to support the accepted view on this subject. Analogy with the closely related disease, tick-borne typhus, suggests that infection can persist among the mites for long periods with very occasional refreshing by biting infected animals.

Pathology.—The essential features of the pathology of all the typhus fevers are remarkably similar. Apart from the effects of circulating toxins, special damage is caused to the organs and tissues of the body by interference with their blood supply. The rickettsiae multiply chiefly in the vascular endothelial cells, which become swollen or even proliferated. The walls of the capillaries and small arteries become infiltrated by mononuclear cells, chiefly lymphocytes, and in the tissues immediately adjoining these vessels there are often collections of similar cells. The special nervous and circulatory manifestations that occur in the typhus fevers are believed to be caused chiefly by damage to the central nervous system resulting from obstruction to the blood supply. The heart and other organs doubtless suffer to some degree from similar damage, but the modern view is that the circulatory failure is caused mainly by injury to the vasomotor centres, and to a minor degree by myocarditis. After defervescence a slow but complete return to normal occurs in the great majority of cases; permanent damage to the brain or heart is quite exceptional.

Immunity.—There is complete immunity for a variable period after an attack, and, although this gradually diminishes, second attacks are likely to be less severe. Relapses have not been mentioned in any of the descriptions of the disease.

Clinical Features

The general resemblance between scrub typhus and the other typhus fevers is very striking. Apart from the eschar and lymphadenitis, which are often absent, there is no sign or symptom that can be relied on for the differentiation of a case of scrub typhus from one of classical typhus. The resemblance to tick-borne typhus is even closer, because the local lesion and lymphadenitis occur in some types of that disease.

In making a comparison between scrub typhus and the other fevers of the typhus group account must be taken of the great variations that occur in the virulence of the infection in each fever and also in the age and previous health of the groups of patients concerned. Just as louse-borne typhus may be a relatively mild or a highly fatal disease, so also scrub typhus shows a wide range of severity. The variability of scrub typhus is so important a feature of the disease that it deserves to be emphasized by giving a few examples based on descriptions of recent outbreaks among troops.

Analysis based on Recent Reports of Scrub Typhus

No. of Cases	Usual Type of Onset	Percentage Incidence of Eschar	Usual Range of Leucocyte Count	Fatality Rate (%)
50	Sudden	6	9,000–12,000	Nil
85	Gradual	80	4,000–6,000	3
626	Rapid	59	3,100–12,000	9·7
756	„	85	Relative lymphocytosis	1
36	„	17	Moderate leucopenia	3

The rash was seen in most of the white-skinned patients, but in very few of the dark-skinned. In the outbreak in which the fatality rate was 9.7% there was only one death among the first 100 patients, but there were 37 in the next 150, who had been greatly debilitated by previous hardship and disease.

The general clinical picture must be viewed in the light of the above statements. Except when otherwise stated, the details can be filled in from any good description of classical typhus occurring among corresponding groups of persons; the average type of the fever, the rash, the symptoms, the complete freedom from relapses, and the convalescence, conform to the same pattern in both diseases.

The incubation period ranges from 7 to 21 days. When the eschar occurs it usually makes its appearance before the onset of the fever; it begins as a papule and soon becomes a round or oval sore, 2–3 mm. in diameter, surrounded by a red raised zone of about the same width. Soon a scab forms at the centre; later this drops away, leaving a punched-out ulcer surrounded by a bright-red zone of skin. There is neither pain nor irritation, so that the patient is seldom aware of the existence of the eschar. Any part of the body may be affected, and the regional lymphatic glands are usually enlarged and tender.

The onset of the fever is as a rule rapid, sometimes with chill, and nearly always with headache of the post-orbital type; pains in the loins and the limbs are common; the conjunctivae are injected, the eyelids swollen, and the face looks bloated. A rapid step-like rise in the temperature follows, and the maximum is reached in two or three days. By the fourth or fifth day there is often a moderate degree of generalized lymphadenitis. The rash appears on the fourth to the seventh day, first as discrete macules on the trunk; soon these become somewhat papular and the rash extends to the limbs. In most of the reported outbreaks the hands, feet, and face are said to have been seldom involved. In pigmented skins the rash can rarely be detected.

The patient's condition steadily becomes worse, and by the end of the first week the same types of mental symptoms as occur in classical typhus are usually observed; there may be excitement or delirium with nocturnal insomnia, or the patient may be lethargic or stuporous. There often is a dry unproductive cough, associated with redness of the throat and bronchitis. The spleen is frequently palpable. The blood pressure falls, and during the second week the systolic reading is often below 100 mm. Temporary deafness, usually partial, is frequently observed, and there is increasing prostration. The leucocyte count may show little change, but a progressive leucopenia with a total or relative lymphocytosis is a common feature in many outbreaks. Leucocytosis, even up to 21,000 total count, has exceptionally been observed, but high counts are usually associated with secondary infections.

On the average the onset is rather less rapid than in louse-borne typhus, and there is a greater average tendency to daily remissions in the temperature curve. Leucopenia and lymphocytosis also are more frequent than in louse-borne typhus, but all these features are so variable that they cannot be relied on to differentiate the two diseases. Scrub typhus is said by some observers to differ from classical typhus in having few haemorrhagic, thrombotic, and septic complications, but these manifestations are equally infrequent in many outbreaks of classical typhus among young and previously healthy men.

The termination of scrub typhus is usually by lysis, which tends to be more gradual than that commonly occurring in classical typhus. The duration and severity of the attacks show the same wide range of variation as occurs in louse-borne and

tick-borne typhus; there is also the same tendency to circulatory failure associated with a fall in the blood pressure. With recovery the circulation is gradually restored, and often there is sudden diuresis. Traces of albumin usually appear in the urine, but nephritis is exceptional.

The Weil-Felix Test

Strangely enough, the commonly used laboratory test for scrub typhus is based on the development of serum agglutinins, whose presence is indicated by the agglutination of a bacillus which has nothing to do with causing the disease. This is *Proteus OXK*, a bacillus derived by chance mutation from a strain of *Proteus OX 19*. In classical and flea-borne typhus *OX 19* is agglutinated in rising titre, and the reaction with *OXK* is negative or weakly positive. In scrub typhus these responses are reversed: *OXK* is strongly agglutinated and *OX 19* hardly or not at all. These bacilli thus serve as indicators of the types of the disease, perhaps in a manner analogous to the indications given by various sugars in differentiating the bacilli of dysentery and other diseases.

Carefully selected strains of *OXK* must be used; this organism, itself a mutation strain, is liable to undergo unexplained variations in its agglutination responses, but when standardized suspensions are used the test is as reliable for scrub typhus as the agglutination of *OX 19* is for louse-borne and flea-borne typhus. The rise in titre usually begins about the end of the first week of the fever and reaches its maximum about the end of the second week. The test should be carried out as early as possible and repeated at intervals, because the rising titre is of special significance; an initial negative reaction followed by a titre as low as 1:50 is stronger evidence than a single late reaction of 1:100 or even 1:200. Occasionally the reaction does not become positive till convalescence has set in. In patients who die before the 14th day the reaction often remains negative till death, otherwise it becomes positive in a very high proportion of the cases. False positives are rare when reliable suspensions are used.

As happens in other typhus fevers, the Widal reaction is often positive in scrub-typhus patients who have been inoculated with T.A.B. vaccine.

Complications; Prognosis; Convalescence

Bronchitis is a common complication, but is probably only a manifestation of the disease resulting from the multiplication of the rickettsiae in the respiratory mucous membrane. Bronchopneumonia also is probably a severe rickettsial reaction rather than a secondary infection. Secondary infections with pneumococci and septic organisms are infrequent except among patients who have been debilitated before the onset. Malaria is very prevalent in most of the places where scrub typhus occurs, and must constantly be borne in mind. In all cases of doubt a course of mepacrine should be given.

The average fatality rate in scrub typhus is about 5%. In outbreaks of low virulence among previously healthy young men it may be less than 1%, but in outbreaks of a virulent type in debilitated troops it may be as much as 20%, and in these circumstances elderly patients are more likely to die than to survive. In one outbreak there were six deaths among 13 officer patients, and four of these deaths were in persons over 35 years of age. Most of the deaths occur between the 7th and 21st days.

Convalescence is prolonged after severe attacks, but is usually complete in the long run. The average period of disability is about three months; during this time the circulatory response to exercise is poor, and a return to full duty may have to be delayed much longer. Final invaliding is likely to be necessary only in elderly patients who have had severe attacks.

Diagnosis

Few diseases are easier to diagnose when suspicion has been aroused, yet the all-important first cases in outbreaks have often been missed, with the result that preventive measures have been delayed. Now that the disease has become so notorious the most likely mistake is to make the diagnosis of scrub typhus in attacks of malaria or dengue, or to overlook the coexistence of malarial infection and scrub typhus.

If the eschar is present the diagnosis can be made at the very onset of the fever; otherwise a consideration of the exposure to risk and the early symptoms will often point strongly to scrub typhus, but a confident diagnosis may not be possible till the rash appears or the characteristic agglutination reaction becomes positive. Dengue may be closely simulated in the first few days, but its onset is usually more sudden and the epidemiological conditions in which it occurs are different. Flea-borne typhus may occur almost everywhere in the area of distribution of scrub typhus, but the chief risk of infection is in towns and villages, and outbreaks of considerable size are not likely to arise. The agglutination reaction in the flea-borne disease is of the *OX 19* type; the eschar and lymphadenitis are not present, otherwise the symptoms are very similar to those of scrub typhus. Tick-borne typhus also occurs in many places in the East, but no outbreaks have been reported from the theatre of military operations; the agglutination response is rarely of the *OXK* type, and if cases were mistaken for scrub typhus little harm would be done, as treatment and prevention are on almost identical lines. Louse-borne typhus is remarkably uncommon in the Tropics, even among louse-infested communities, but the disease can be expected to occur in subtropical China, increasing in frequency in the colder parts of the country. In northern China louse-borne and flea-borne typhus may appear simultaneously in one locality and so give rise to difficulties in differential diagnosis because the symptoms and agglutination reactions are the same in these diseases.

Although knotty problems in differential diagnosis may occasionally arise, few mistakes will be made if the epidemiological conditions are considered and serological tests are carried out.

Treatment

Treatment is on exactly the same lines as in louse-borne typhus except that no precautions are needed to prevent the spread of infection from the patient. No drug has yet been found to have a favourable influence on the course of the disease, though para-amidobenzoic acid may turn out to be of value in view of its successful use in some cases of classical typhus. Convalescent serum has had no obvious effect in the few cases in which it has been tried, and the attendant risks in malarious countries deserve consideration.

Careful nursing, preferably in the Fowler position, a generous varied diet rich in vitamins, and an adequate intake of fluid are generally agreed to be essential. At least four pints of liquid should be taken daily; given by the mouth, or if necessary by a nasal tube kept *in situ*, there is little risk of fluid retention such as may occur with the intravenous administration of salines and glucose. Supportive intravenous treatment should be undertaken only when expert laboratory help is available, but plasma may be needed in exceptional cases. The urinary output must be maintained; it should be measured every eight hours in serious cases. Digitalis and adrenaline seem likely to do more harm than good. Oxygen should be given if cyanosis develops. For intense and persistent headache lumbar puncture should be carried out.

The psychological factor in treatment is important. The patient is greatly helped by the maintenance of a cheerful atmosphere; he must not be allowed to receive the impression that his illness is of a mysterious and deadly kind; and care is specially needed to avoid any suggestion that his heart is likely to be permanently damaged. These patients are often fractious, so they must be managed with a judicious combination of firmness and kindness such as is suitable for mental cases. The diet should be varied; "something to chew" is helpful in maintaining the hygiene of the mouth, and when the patient's condition allows he should sit up in bed for his meals. Frequent changes in position and a careful watch for oedema and threatened bed-sores are needed for lethargic and comatose patients. Sulphonamides have not been effective for bronchopneumonia, presumably because this is caused by the rickettsiae rather than by secondary infections. Although penicillin has been disappointing, it is said to have been helpful in one case with bronchopneumonia.

Transfers of patients involving a tiring journey should never be permitted after the first few days. The pathology of scrub typhus should be borne in mind in planning treatment; the disease is essentially a rickettsial vasculitis. The patient must

be warned against exertion till his response to exercise becomes satisfactory.

Prevention

Prevention has to be considered from two points of view—the protection of camp sites and of troops compelled to enter mite-infested areas. When a choice of camp sites is possible a dry area should be chosen. The site should be thoroughly cleared of all grass and vegetation by cutting, oiling if possible, and burning. Indigenous labour should be employed when available. For important camps a bulldozer would be invaluable; the ideal to be aimed at is to obtain a surface covered with earth or sand and completely free from vegetation. When this is impracticable an effort should be made to provide such a surface for occupied quarters and paths, and to prohibit all straying from the prepared ground. The work should, if possible, be carried out under the supervision of an expert entomologist. The protection of troops compelled to expose themselves to risk is a troublesome problem, complicated by the difficulty of designing mite-proof clothing which would be tolerable in tropical conditions. The detailed measures now adopted cannot, for security reasons, be completely divulged, but it is known that mite repellents, such as dimethyl phthalate, have been applied to the skin and clothing, and that intensive study of the whole subject has been carried out by competent experts.

The control of rats and other animal reservoirs of infection must be undertaken with great circumspection, and only under expert guidance, for the reasons already given. Rats should certainly be discouraged from infesting the camp by keeping every scrap of food out of their reach and by seeing that no suitable nesting-places are available for them. The camp should be kept free from animals of every kind; to ensure this a high standard of tidiness is needed, especially in cookhouses and food stores. Rat and mouse holes can safely be treated by cyanide gas; trapping and poisoning may be risky.

Prevention by egg-yolk or animal-lung rickettsial vaccines has been the subject of close investigation by experts, but many difficulties are likely to be encountered in work of this kind. The instruction of all who are exposed to risk must form an important part in the campaign against scrub typhus; success can be achieved only by the intelligent co-operation of everyone. There is plenty of evidence that the disease is being taken very seriously by the Allied Forces in the East, and there are good grounds for hoping that the energetic measures of control now being adopted will reduce the scrub-typhus menace to negligible proportions.

SCRUB TYPHUS: A CLINICAL STUDY

BY

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During the period Nov., 1944, to Jan., 1945, 110 British patients suffering from scrub typhus were treated in a forward Indian general hospital. This paper is a summary of the clinical records of these cases and of impressions gained with regard to diagnosis, prognosis, and treatment. The patients were all drawn from units of a British formation which entered a small "typhus island" in N.E. Burma during the first week of November. The preventive measures now in force had not at that time been adopted, and the onset of symptoms in the first cases occurred on Nov. 17—that is, approximately two weeks after entry into the affected area.

The first group of patients were admitted to the general hospital on Nov. 27, and in the next three days the total number had reached 41 (1 officer and 40 B.O.R.s). In December there were 69 admissions (3 officers and 66 B.O.R.s), most of whom reached us during the first nine days of the month. After this date fresh cases were received only very occasionally, owing to more efficient prophylaxis and to the fact that the main body of the formation had driven beyond the endemic zone. At first, cases reached the general hospital on the fifth to tenth day of the illness. Later, as forward medical units became more "typhus conscious," the disease was recognized earlier, and patients were evacuated about the third or fourth day.

Clinical Features

The onset was usually sudden, with severe headache and fever, with or without a rigor. The *temperature* usually reached 103° within the first 48 hours, and was often slightly higher. Thereafter the fever was usually continuous, but a four-hourly chart sometimes showed an intermittent type, a sudden drop to normal or subnormal, accompanied by profuse sweating, taking place in the early hours of the morning. The average duration of fever was 15.7 days (extremes, 5 days and 29 days), the return to normal being by lysis. Twenty-five cases had fever of 10 days' duration or less. *Headache* was present in 100% of cases from the onset of the illness. It was often frontal or retro-orbital, and of such severity that it was not relieved by the usual analgesics. *Sore throat*, with injection of the fauces, was present in 54% of cases; it was so severe as to prevent swallowing in 4 cases (3.6%).

Primary Lesion or Eschar.—56% of cases showed typical eschars. The lesion was generally single, but 3 cases each had 2 eschars, and one case had 3. The eschar may be missed if the search is not thorough. In several cases the eschar was found on the scrotum, the perineum, or between the buttocks. The common sites, in order of frequency, were the axilla, the anterior aspect of the trunk, the forearm, the leg, and the back of the chest. The patients were rarely aware of the existence of the lesion, and in only two cases could the men recall having noticed it before the onset of general symptoms. These troops were so inured to jungle sores, however, that it is not surprising that they took little heed of an extra one.

Conjunctival injection and marked *flushing of the face* were common signs, being observed in 82% and 65% of cases respectively. They were of assistance in the early diagnosis of the disease, since they were present by about the third day.

Adenitis.—Of the cases 98% showed moderate enlargement of the lymph nodes in all areas. The glands were not visibly enlarged except in a small number, but were very readily palpable, discrete, rubbery, and sometimes tender in the first week or so. Enlargement was appreciable by the fourth day of the illness. Except in a few cases, the glands draining the eschar were not noticeably larger than those palpable elsewhere.

Rash.—In 64% of the cases there was a maculo-papular rash—more rarely purely macular—on the fifth or sixth day of the illness. It lasted three to four days and was distributed mainly on the trunk, the face, and the proximal portions of the limbs. One case presented unusual features, in that at the time of the maculo-papular rash, and healing as the latter faded, there were multiple superficial herpes-like erosions of the glans penis, similiar lesions of the buccal mucosa, and an oval sloughing ulcer of the lower lip. The Kahn reaction in this case was negative, which answered a suspicion that temporarily occurred to us, and the patient subsequently became the subject of typical typhus necropsy.

Mental State.—There was some definite alteration in 50% of the cases. This varied from a drowsy apathy with mental confusion, in average cases, to restlessness, delirium, and sometimes a "typhoid state" in grave cases. Mild cases showed no mental change other than that caused by the constant intense headache.

Respiratory Signs.—50% of cases had signs of a diffuse bronchitis, and they produced a variable amount of mucoid sputum which was occasionally blood-tinged or rusty. Unless the sputum became purulent or the total white cell count rose above 10,000 per c.mm., we regarded this as a rickettsial bronchitis or pneumonitis—part of the typhus syndrome, and not an indication for chemotherapy. Cyanosis and an increased respiratory rate were observed to be of grave prognostic significance. These signs did not often tally with the physical signs in the chest.

Hiccup was noted in 20% of cases, and was distressing to the medical and nursing staff as well as to the patients affected. It was a symptom of grave prognosis also. Six of our 9 fatal cases were thus affected. In some cases the symptom may be

the result of enlarged mediastinal glands, though we considered it generally an indication of impending uraemia, the average blood urea in these cases being 80 mg. per 100 c.cm.

Chest Radiography.—A portable apparatus was not available; consequently cases were not *x*-rayed until the onset of convalescence. The first 8 cases at this stage showed completely normal chest films, after which the investigation was abandoned except when specially indicated.

Splenomegaly.—The spleen was palpable, sometimes easily so, in over 50% of cases. Since all patients were taking suppressive mepacrine, however, and 15 (13.6%) had demonstrable malaria parasites in the blood on admission, it was not possible to say to what extent typhus itself might have been the cause of the enlargement. We feel that, in an endemic malarious area, too much importance should not be attached to this sign.

Urinary System.—The urine, chemically and microscopically, was found to be normal. Neurological abnormalities—incontinence or retention—occurred in 15% of cases.

Cardiovascular Signs.—The pulse rate tended to be rather low in relation to the temperature in the first few days of the illness, but in the later stages of the acute phase it went up to 130 or more. Dilatation of the heart was not appreciable clinically. In downhill cases the blood pressure became progressively lower. The only positive sign, apart from tachycardia, occurred in 4 cases (3.6%) which manifested repeated extrasystoles. No bruits were heard. Tachycardia sometimes persisted well into convalescence.

Nerve Deafness.—This is probably a valuable sign, but one which we found difficult to assess owing to the profound apathy common in these patients and their slow cerebration. In general we found measured speech as well understood as a stentorian voice.

Neck rigidity and stiffness were noted in 6 cases (5.4%) in the early stages. The C.S.F. was clear and under normal pressure.

Blood Investigations.—The total red, total white, and differential white counts revealed no abnormality in the majority of cases. We attached significance to a total W.B.C. count exceeding 10,000 per c.mm. (see below).

Weil-Felix Reaction.—We took the agglutination of the Kinghbury strain of *B. proteus* (OXK) in dilutions of 1/125 or greater to be diagnostic. The average titre obtained on the 17th day of illness was 1/250, the greatest being 1/12,500 (19th day). We feel that the (OXK) titre is by no means indicative of the severity of the infection, and that a titre lower than 1/125 does not negative a clinical diagnosis. In our series 20 persistently gave positive results in titres lower than 1/125, but we have no doubt that they were cases of scrub typhus. In most instances the titre rose steadily during the first three weeks and then began to fall.

Complications

Lung Complications.—Bronchopneumonia (4 cases) and lobar pneumonia (3 cases) were observed. There were the usual clinical signs and a raised total white cell count, the increase being largely polymorphonuclear. Three of these cases developed empyema, two of them resolving after aspirations and local and parenteral penicillin, and one requiring rib resection. The pus aspirated revealed staphylococci and streptococci in one case and no growth in the second; in the third case, which failed to respond to penicillin, staphylococci were grown at first, but later *B. coli* (penicillin-resistant) was cultured.

Alimentary Complications.—Parotitis, 1 case; haematemesis, 1 case (fatal); diarrhoea, 3 cases.

Cardiovascular Complications.—Femoral thrombosis, 2 cases; unexpected myocardial failure during convalescence, 1 case.

Nervous Complications.—Transverse myelitis syndrome, 1 case; mild peripheral neuritis, 6 cases.

Bed-sores.—3 cases.

Concurrent Disease.—Malaria, M.T. or B.T., 15 cases (2 cerebral malaria); amoebic dysentery, 2 cases; dysentery, bacillary exudate, 2 cases.

Course and Prognosis; Morbid Anatomy

The fever usually lasted a little over two weeks. Recovery was rapid. Signs of ill omen were cyanosis, increased respiratory rate, hiccup, retention of urine, and gross mental changes. In our series 9 out of 110 patients died, giving a mortality rate of 8.2%.

One of our patients died unexpectedly four days after the temperature had reverted to normal. We found a flabby dilated heart with moderate fibrosis, and could point to no cause other than acute myocardial failure. One died after a haematemesis, and post-mortem examination revealed numerous submucous haemorrhages in the stomach and small intestine. The other seven deaths were attributable to toxaemia, and occurred between the 12th and 24th days of the illness. Enlargement of the mediastinal and mesenteric lymph glands was commonly found, with congestion of the liver, a soft enlarged spleen, and congestion of the lungs, sometimes with subpleural haemorrhages.

Diagnosis

Clinical diagnosis was easy owing to the presence of associated cases. A sudden onset with severe headache, followed by the combination of sustained pyrexia, enlarged rubbery lymph nodes, conjunctival injection, a maculo-papular rash, and an altered mental state—a combination which most cases presented by about the fourth or fifth day—will rarely be anything else even in the absence of an eschar. A typical eschar together with any of the above signs was considered diagnostic. The Weil-Felix reaction was of value as later confirmation, but reached significant levels too late to be of assistance in the early stages.

Differential diagnosis resolved itself into two phases—that before the lymph nodes enlarged, and that which pertained afterwards. In the first phase malaria and fevers of the dengue-sandfly group were likely to be confused. The onset in the case of enteric was usually not so abrupt. The cases which showed stiffness of the neck muscles gave rise to the suspicion of meningitis, which was excluded by lumbar puncture. Primary infections of the respiratory tract (streptococcal sore throat, acute bronchitis, bronchopneumonia, and lobar pneumonia) gave little trouble because of the correlation of other symptoms. In the second phase glandular fever, acute leukaemia, and agranulocytosis were excluded by a white cell count. In measles the first symptoms are coryzal, Koplik's spots will be present, and the temperature will fall before the rash appears. Secondary syphilis will very rarely be so severe, and the proportionate predominance of individual symptoms and signs will be different. Serum reactions will be positive.

Treatment

General.—In no disease is the physician less important except as a guiding force, and the nurse more essential. These particular patients were fortunate in having a ward sister who accepted this from the start and gave up practically all her "off-duty" time week after week. Nursing must be intensive and continuous, without which many patients who otherwise would live will inevitably die. An adequate diet was maintained—a minimum of 2,400 calories daily, including 100 g. of first-class proteins—and dehydration and salt depletion were combated. Most patients, with sufficient encouragement, took fluid and semi-solid nutriment by mouth. If not, the transnasal intragastric Ryle's tube was employed. Intravenous fluids tended to aggravate the respiratory symptoms, and in any case were of use only in a grave emergency. Vitamin concentrates of A, B, C, and D were available and were given to all patients as a routine. Since these patients came from a highly malarious area, a full course of mepacrine was given from the date of admission, followed by suppressive treatment. Pressure points and oral hygiene required constant attention. Rest in bed was enforced till the pulse rate settled to normal (usually 10 to 12 days after the temperature touched normal), and then patients were allowed to get up and move about gradually.

Symptomatic Treatment.—Insomnia, due usually to intense headache, was treated with potassium bromide, chloral hydrate, each 15 gr., and tr. opii, m. 15; or paraldehyde 6–8 c.cm. intramuscularly in severe cases. Paraldehyde by mouth was usually not tolerated. Hiccup was difficult to manage, and responded

best, even though only temporarily, to inhalations of CO_2 and oxygen. Cyanosis and respiratory distress responded well to continuous oxygen administration, though this treatment had to be continued as long as three days in some cases. Patients with meningitic symptoms were lumbar-punctured, principally from the diagnostic point of view. Removal of cerebrospinal fluid did not appear to alleviate the symptoms.

Treatment of Complications and Concurrent Diseases

Lobar and lobular pneumonia due to secondary pyogenic infection were treated with sulphathiazole in the usual dosage. Of 7 cases so treated, 3 developed empyema. Treatment adopted for this was repeated aspiration followed by instillation of penicillin into the pleural cavity, combined with intramuscular penicillin in dosage of 100,000 Oxford units daily. This treatment led to resolution in two cases, but the third became contaminated with *B. coli*, and rib resection was necessary to complete the cure.

The case of parotitis cleared up without resort to surgery. The two cases of femoral thrombosis were treated along the usual lines, but recovery was marred by a residual oedema of the leg. Retention of urine called for twice-daily catheterization until bladder control was regained. Bacillary and amoebic dysentery were controlled with sulphaguanidine and emetine respectively.

Summary

A series of 110 cases of scrub typhus in British patients is described.

The disease generally presented a clear-cut symptomatology, and clinical diagnosis was not difficult.

The Weil-Felix reaction becomes positive in significant titre too late in the illness to be of much assistance in the early diagnosis.

The differential diagnosis and prognosis are discussed and the pathological findings in the fatal cases recorded.

We wish to thank Col. P. H. Addison, I.M.S., for permission to present this account

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THE EFFECTS OF MECHANICAL STRESSES ON MAN*

BY

B. H. C. MATTHEWS, C.B.E., Sc.D., F.R.S.

LECTURE II

In aircraft man moves at very high speeds, but high speed in itself does not produce any physiological effect if the pilot is protected from high wind-pressures in a closed cockpit. However, when motion changes rapidly, either in direction or in magnitude, the pilot is subjected to very great mechanical stresses not ordinarily met with on the ground. The practical effects of these may be separated into two classes of phenomena: (1) those associated with change of speed such as occurs in catapult-launching or in crash-landing, where high acceleration or deceleration acts for a short time; and (2) those associated with change of direction of motion, which may be of long duration but of less magnitude, as when an aircraft executes a tight spiral. The physiological effects produced depend on the value, duration, and line of action of the force acting on the body and also the area over which the force acts on the body. The magnitude of the force acting on a body, owing to its inertia during change of motion, depends on the rate of change of velocity and the mass of the body. The numerical factor to be related to physiological effects is the change of velocity in feet/second/second. The acceleration due to gravity giving a body its normal weight is 32.2 ft./sec./sec., abbreviated in the sign "g," and it is convenient in physiological work to consider the rate of change of motion in terms of multiples of "g." This makes it possible to give the forces acting a numerical value. It must be emphasized that the acceleration communicated to one part of the body, if it acts only for a very short time, may not produce so great an acceleration on other parts of the body owing to transmission of the forces via parts of the body which yield. For example, if the chair in which a man is seated is given an upward acceleration of 5 g for only one-fiftieth second, the acceleration at the head will have a much lower value and act for a longer time owing to transmission of the force through yielding parts of the body.

If large forces act on a small area the commonest result is a penetrating injury. It is forces acting over a small area in this way which produce all common accident injuries, and to prevent these it is important in aircraft design to avoid projections in the cockpit with which the pilot may come into violent contact if the aircraft is suddenly decelerated, as in crash-landing. Injuries of this type are greatly reduced by the use of properly designed harness to prevent motion of the body relative to the cockpit. Here will be considered only those cases where a large force acts on the body over a considerable area and penetrating injury does not occur.

Physiological Disturbances

Fig. 1 gives in diagrammatic form the tolerance of the seated body to acceleration when it is adequately supported to meet the force. This is drawn as two separate lines, to distinguish between short-acting forces, which may result in mechanical failure of parts of the body, and long-acting forces of lesser

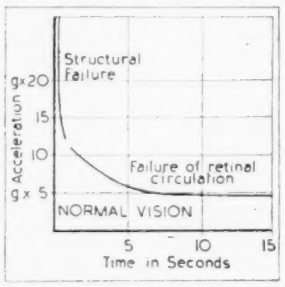

FIG. 1.—Acceleration tolerable to a seated man.

magnitude, which produce physiological disturbances, particularly of the circulation, without permanent structural damage. The upper part of the curve is only a rough indication, and requires further definition of the exact support of the body, which makes a very great difference to the tolerable acceleration. In other postures the tolerable acceleration varies widely. Thus in a standing man fracture of the lower leg is a possibility at 3 g, and is very likely to occur at 7 g. A seated man accelerated forward can tolerate very high acceleration, probably over 25 g. For acceleration in the reverse direction, such as the deceleration in crash-landing, the body must be restrained by a harness, and unless the head is restrained (which is not often practicable) neck injury may occur at less than 25 g. Above this, evisceration may occur. Very high acceleration can be tolerated if it acts on a man supported spread-eagle on his back—probably at least 250 g (de Haven, 1942).

These figures must be regarded as a rough indication only, for unless conditions of support are exactly defined, wide variations may occur in practical cases. They are based on evidence from several sources—viz., (1) From experiment. Squad. Ldr. Stewart has carried out many catapult experiments with various postures, experiencing the accelerations which can be tolerated without injury. (2) From analysis of accidents, where it is often possible to reconstruct probable forces that have been in action. (3) From an analysis of unsuccessful suicide attempts which has been made by de Haven (1942).

The problem of concussion is too extensive to be considered here. The forces necessary to produce concussion, if penetrating injury does not take place, appear from de Haven's figures to be very high indeed, perhaps 300 to 400 g. Experiments by Denny-Brown and Russel (1941) also show that very high acceleration is required to produce unconsciousness in animals, though in practical rather than theoretical cases the work of Holbourn (1943) suggests that injury may result to the brain when the head receives a much lower acceleration if the

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force does not act through the centre of gravity of the head so that a sudden rotation is imparted to it. Damage to the brain may then result from its lagging behind the skull in rotation.

It is clear that these factors, and their proper application to aircraft construction and procedure, can do much to save life, especially in crash-landing, and much work has been carried out for the R.A.F., especially by Squad. Ldr. Pekarek, to give suitable protection to the body.

During prolonged acceleration physiological disturbances occur from the effects on the hydrostatic columns of blood in the body. Much physiological research has been carried out in the past on the effect of normal gravity on the circulation and the readjustments in the circulation which take place with change of posture. But in flight far greater forces, which easily produce unconsciousness, come into play.

"Blacking-out"

In the Schneider Trophy races pilots found that during turns at very high speed they suffered visual failure, which was given the name of "blacking-out." Experimental studies were carried out by R.A.F. medical officers Livingston (1939), Rook and Dawson (1938), Corner, and Wallace. Before the war intensive work on this subject was carried out in Germany, particularly by Ruff, by von Diringshofen (1934), and by Strughold. A centrifuge to reproduce the conditions of rapid turns was built in Berlin in 1935. By 1939 it was established that blacking-out was due to failure of the circulation above the heart owing to the great increase in effective weight of the blood while subjected to high acceleration. The subjective sensations under these conditions are those of a great increase in weight of all parts of the body. An increase to three times gravity makes it impossible to walk about, and at about four to five times gravity when seated it is impossible to raise the feet off the floor of the cockpit (Stewart, 1945). The pilot feels forced into his seat, and at 5 g, were his seat supported by a spring balance, it would indicate an apparent weight five times his own, so that a 200-lb. pilot would record about half a ton on the balance. This apparent increase in weight causes sagging of the soft tissues of the face, illustrated in the photographs (Fig. 2) of a

FIG. 2.—(i) Subject in straight and level flight. (ii) Subject at an acceleration of 4 g while turning. This illustrates the sagging of the soft tissues of the face owing to their virtual increase in weight.

subject in straight and level flight and during a tight turn. A number of R.A.F. aircraft have been equipped for research under these conditions, and a great deal of work has been carried out, particularly by Squad. Ldrs. Stewart, Davidson, and Watt.

A centrifuge operating on the ground can approximately reproduce these conditions without the added hazards of flight, although, owing to the rapid rotation necessary, other effects are brought into play. These are of secondary importance to the large centrifugal effects. Centrifuges to carry men have been built in Australia, Canada, and the U.S.A. The R.C.A.F. centrifuge (Franks *et al.*, 1945) at Toronto is shown in Fig. 3.

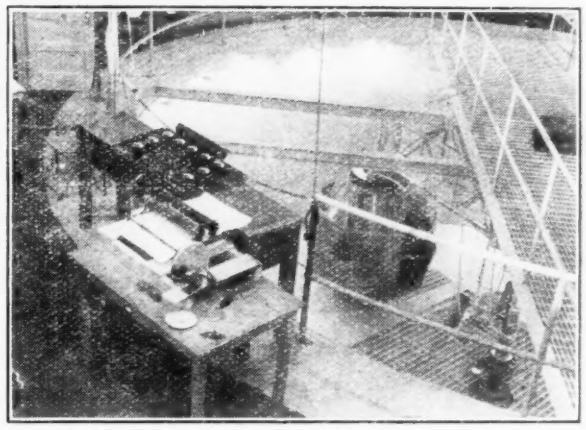

FIG. 3.—R.C.A.F. centrifuge, Toronto, Canada.

The effects of centrifugal force are primarily due to disturbance of the circulation. The blood virtually becomes the weight of iron at 7 g, and, if the circulation in the brain is to continue, a pressure of over 200 mm. must be maintained in the aorta to force it upwards against these forces. Moreover, the venous return from the lower half of the body falls and, unless inflow is maintained, clearly arterial pressure must also fall. In addition the normal circulatory reflexes are greatly disturbed when subjected to these conditions. The first symptom is loss of vision, and this is due to failure of the retinal circulation, which occurs before failure of cerebral circulation because the intraocular pressure is opposed to that circulation. This does not occur immediately the force is applied, but lags behind it some 5 to 8 seconds. This lag presumably represents the oxidative reserve available in the retinal cells themselves. Experiments by Craik and Stewart in 1941 showed that increasing the intraocular pressure by pressure applied to the eyeball produces blacking-out after about the same time interval as occurs while flying; and applying pressure to the eyeball while under acceleration in flight causes blacking-out to occur at values of "g" at which vision is unimpaired with normal intraocular pressure. With increasing acceleration when a pilot progressively tightens a turn, peripheral vision is lost and central vision becomes hazy before complete black-out. When just blacked-out, other cortical functions are less obviously impaired. Squad. Ldr. Stewart showed that hearing and smell are still functional; if the acceleration is still further increased unconsciousness results, with loss of muscular tone; as this occurs other neuro-muscular disturbances are seen. When the acceleration is removed consciousness returns rapidly, though after severe blacking-out convulsive movements of the limbs may be experienced, and the subject suffers retrograde amnesia and is disorientated (Franks *et al.*, 1945). The factors determining the severity of blacking-out are: (1) magnitude of the acceleration; (2) duration of the acceleration; (3) posture of the subject; (4) individual susceptibility.

So far a normal seated posture has been considered, and the average tolerance of acceleration under these conditions is roughly 5 to 6 g for five seconds.

Protection against Centrifugal Force

There are three practical methods of protecting the circulation against centrifugal force: (1) "Self"-protection: voluntarily increasing the tone by contracting muscles of the lower half of the body is found to increase by about 1 g the threshold at which blacking-out occurs. (2) Posture: by reducing the length of the columns of blood involved. This can enable a man to increase his tolerance of acceleration. Fig. 4 gives a diagram-

matic summary of the effects of various postures on blacking-out thresholds. (3) Protection by the use of special garments.

In a normal sitting posture there are two processes leading to a failure of circulation in the head. The increasing weight of the blood requires increasing pressure in the aorta to maintain the circulation, and the venous side of the heart may be starved by pooling of the blood in vessels below that organ. This venous drainage may be reduced by surrounding the lower half of the body by a garment which applies equal pressure to the

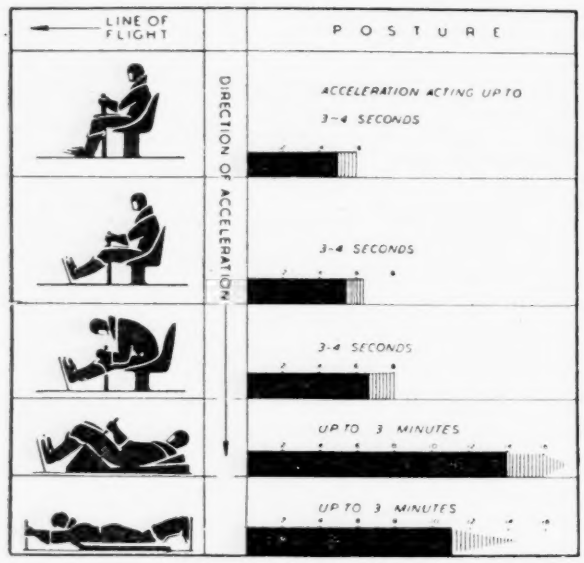

FIG. 4.—The effect of posture on the blacking-out threshold of a human subject (redrawn after Ruff).

outside of the abdomen and lower limbs, to counter the outward pressure in the blood vessels while under acceleration.

The first scheme of this sort was that put forward by Marshall in 1933, using air bladders to compress the abdomen; the pressure being provided by the forward motion of the aircraft from a scoop which opened under the action of centrifugal force. An alternative scheme provided pressure automatically from a water-tank connected to the bladders at shoulder level. Flight tests showed that abdominal pressure alone was not entirely satisfactory, and much of the venous pooling occurred in the legs. A hydraulic suit to "pressurize" the thighs in addition to the abdomen, using water bladders within an inextensible suit, was worked out by Dr. Bourdillon in 1938, and submitted to the Air Ministry early in 1939.

In 1939 the late Sir Frederick Banting devoted much time and energy to organizing research in Canada on the development of anti-"g" garments, and Franks, working with him, constructed a number of suits on the hydraulic principle. After trials by the R.A.F. which established the effectiveness of this, a practical anti-"g" garment was produced from them by the research staff of the Dunlop Rubber Company, working with Wing Cmdr. Franks and Flying Officer Wilson. The Franks hydraulic suit was used in 1943 and 1944, but has now been discarded because, by the use of air pressure in place of water, effective protection can be achieved with a much less cumbersome garment.

Early in the war an air-pressure suit was developed in Australia by Dr. Cotton, working with the Australian Air Force, and using the centrifuge (McIntyre, 1945) which was set up there for the purpose. Since then the air principle has been very highly developed in America to give a comfortable and light garment which effectively pressurizes the lower limbs during turning in aircraft and enables the pilot to tolerate some 2 to 3 g beyond the point at which he normally blacks out. Development of air-pressure suits in the R.A.F. has followed on the principles worked out in America. The air-pressure suit is supplied from a pump on the aircraft engine via a valve operated by a weight acting against a spring, so that air is admitted only during positive acceleration in tight turns.

The blood below the heart is at a pressure which increases with the distance below the heart, and it was first thought necessary to apply a similar gradient in the external pressure applied to the surface of the body. The Franks hydraulic suit effected this automatically, as the gradient of pressure in the water is similar to that in the columns of blood in the limbs. The first air suits applied greater pressures to the lower parts of the legs than to the abdomen and thighs; but the advantages of this have not been found to be worth the added complications, and a single pressure applied to the body surface below the heart is very much simpler to achieve and will effectively maintain the circulation. The value of protection of the circulation during tight turns is that not only does it increase the manœuvres the pilot can carry out, which may be of value in "dog-fighting," but frequent application of acceleration insufficient to produce blacking-out is found to cause very marked fatigue, and this is avoided by the use of these garments.

It is at present undesirable to give pilots unlimited protection against acceleration. If this could be done many mechanical failures of aircraft would occur, for aircraft designers in the past have accepted strength limits based on the human tolerance of acceleration, and by making the man stronger than the aircraft in resisting "g" a new danger arises. There is also a physiological cause to avoid very high "g" until more perfect protection can be achieved; for with artificial maintenance of the venous inflow to the heart the great pressures required in the aorta to maintain upward circulation constitute a very great abnormal load on the heart and also raise problems of the structural strength of blood vessels at or below heart level. It is clear that if venous return is kept up and the acceleration increased still further, a point must ultimately be reached where myocardial and other damage will result. Animal experiments by Greenfield (1945) in England and Jasper and Cipriani (1945) in Montreal suggest that this limit is at about 12 g, and may well be lower in man. Fortunately, up to the present there has been no evidence of cardiac damage in the application of up to about 9 g; but it is clear that this is a very serious aspect of the problem, and if danger exists here it may not become apparent for a number of years after the conditions initiating it. It is therefore very desirable that, for the present, the loads placed on the heart in this way should be restricted.

The vascular system of the legs is able to tolerate very considerable increase in pressure during positive acceleration, though petechial haemorrhages are on rare occasions produced locally in the lower leg. However, the factor of safety for abnormally high pressures is very much less in the head. When an aircraft executes an outside loop so that the pilot's head is away from the centre of the circle, the blood is forced in the reverse direction from that already considered, and the pressure in blood vessels of the head may rise to a dangerously high value. An acceleration of about 3 g can be tolerated without danger, but a "redding out" of vision resulting from congestion of the retina may occur. Higher values of acceleration occasionally arise by accident, and haemorrhage in the conjunctiva is to be expected at 4 to 5 g. With higher values of acceleration there is a great danger of haemorrhage in the cerebral vessels, with serious and possible permanent damage to the brain, and for this reason manœuvres which would produce large centrifugal forces acting towards the head are avoided in aircraft.

Conclusion

In these lectures I have tried to give an outline of the two stresses to which large numbers of flying personnel are exposed. Our present knowledge on these problems has resulted from team-work not only on a national scale but, in the last few years, on an international scale between all the Allies. The extensive research organization that the Director-General of Medical Services, Sir Harold Whittingham, has set up for the R.A.F. is kept very fully occupied, and but for the great resources of our Allies and the Empire many of the problems could not have been studied in detail. In the R.A.F. the performance of men and machines has been stretched to the limit to outfly the enemy, but in civil flying the first aim must be to reduce stress on the passenger. While the stresses considered above should never arise in civil flying, knowledge from war research is applied to make civil aviation safer.

Perhaps it is not too much to hope that these researches carried out in the interests of war may prove of value outside aviation in peace. Our knowledge of normal function may

often be increased by elucidation of function under abnormal stresses. One general truth is emphasized in this work—that is, the very great factor of safety in many physiological processes.

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PERIPHERAL ARTERIAL EMBOLECTOMY

BY

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The purpose of this paper is to review the literature on embolectomy, with special reference to the results; to stress the urgency of early diagnosis and prompt surgical treatment; and to describe a case in which a popliteal embolectomy was attended by success even though the time lapse between the occurrence of the embolism and the operation was greater than any other previously recorded.

Aetiology

The emboli we are concerned with are mainly derived from ante-mortem clot formed in the left side of the heart when stasis is present—chiefly in mitral stenosis. Occasionally the clot may be formed in the pulmonary or systemic veins; in the latter case the so-called "paradoxical embolus" occurs, being due to a persistent foramen ovale. But, nevertheless, cardiac dysfunction is the commonest cause: according to Danzis (1933) 60% of cases are due to cardiac disease, while of the 47 peripheral emboli recorded in Great Britain (in the available literature) 40 were of cardiac origin. Three of these occurred in thyrotoxic subjects with auricular fibrillation; the rest were in patients with mitral stenosis—the commonest single cause of embolism. Of the remaining 7, 6 were post-operative and one followed an accident which resulted in a fractured rib.

History of Arterial Embolectomy

Suabanejew, in 1895 (cited by Key, 1923), was the first to attempt "arteriotomy in order to remove a clot." He was unsuccessful, as were the next 11 surgeons who followed his example. Among these were Moynihan (1903; not recorded until 1907) and Handley (1907), in England; Stewart (1905; cited by Allen, 1929), Murphy (1909), and Carrel (1909; cited by Allen, 1929), in America; and Lejars (1902; Allen, 1929), in France.

The first recorded success was described by Mosney and Dumont (1911), when Georges Labey removed an embolus from the bifurcation of the left femoral artery six hours after its lodgment. The patient, a man of 38, had mitral stenosis, and made a good recovery. In the same year Gordon-Watson, in England, attempted to remove a post-operative embolus under similar conditions. The leg, however, had to be amputated later, but the patient survived.

Einar Key, of Stockholm, who was responsible for the second reported successful case, introduced the operation in Scandinavia, after Carrel's experimental work had made arterial surgery a practical proposition (Allen, 1929). By 1923 Key was able to report 12 further successes, mainly by Scandinavian surgeons. In 1923 Holst (Danzis, 1933) reported the first success in America, while it was not until 1925 that Jefferson described the first success in England. In 1928 Pemberton collected 216 cases of embolectomy, of which only 20 had been done in Canada and America, while 145 of them were Scandinavian. Twenty cases had been reported in England by Riddell (1935), but by this time there were 382 cases on record for Scandinavia alone. It is evident that the Scandinavian surgeons had accepted embolectomy as a useful operation, while the general practitioners in that country were co-operating by sending patients to hospital as soon as the diagnosis of peripheral embolism was suspected.

At the present time only 41 cases have been recorded in England; 47 emboli occurred in these, and embolectomy was carried out for 42 of them. The Registrar-General has, for the years 1941–3 alone, details of 34 deaths in which peripheral embolism played a part (personal communication), so there is no doubt that more than the 41 cases recorded have occurred in England since the time of Moynihan's first attempt.

Results

The main factor in the recovery rate of the *limb* in embolectomy is time—the time allowed to lapse between the lodgment of the embolus and the attempt to remove it. Pearse (1933) and Danzis (1933) have shown this to be true in their reviews of relatively large numbers of cases, which are expressed diagrammatically in Figs. 1 and 2.

The total successes reported in the past tend to give rather a gloomy impression (see Table), but on more careful examination it becomes apparent that if *all* cases could be treated within 4 to 6 hours of the impaction of the embolus in the artery, then the total number of recoveries might be very much greater. Dickson Wright (1933) in a postgraduate lecture stated that there is a 50% chance of recovery after embolectomy. Without operation the mortality rate in patients who have a peripheral embolus has been put as high as 87% (Danzis, 1933), with the majority of the remaining 13% having to undergo amputation of the affected limb.

Table showing Recovery Rates as found by Various Observers

Observer	Year	No. of Embolectomies	Successes	
			No.	%
Jefferson	1925	73	28	34·2
Danzis	1933	119	49	41·1
Pearse	1933	296	145	49·7
Key	1936	382	86	22·5
Hopkins	1945	42*	24	57·1

* This figure includes the 20 cases collected by Riddell (1935).

The ultimate prognosis, of course, is that of the causative disease.

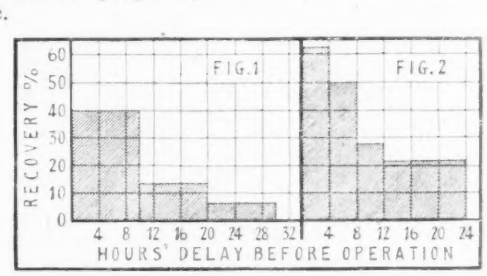

FIG. 1.—After Pearse (1933). 296 cases.
FIG. 2.—After Danzis (1933). 119 cases.

Successful cases have been reported in which more than 24 hours have elapsed between the embolism and the operation; the present case was not admitted to hospital until 39 hours' delay had occurred, and it is very interesting to note that a limb is capable of recovering even after this period of complete anoxia, provided that a good circulation can be restored. Holst (cited by Danzis, 1933) was successful with his case after 27 hours' delay, and Girdlestone's (1935) case recovered after 24 hours. It is apparent, therefore, that operation should be undertaken even when an unduly long delay has occurred, although it must still be emphasized that the optimum time for embolectomy is within 4 to 6 hours of the lodgment of the embolus. This consequently means that early diagnosis is essential.

Diagnosis

The leading factor in the diagnosis of peripheral embolism is that *something sudden happens in a limb.* Often a patient will liken his illness to a "stroke," and almost always he will be able to give the exact time of its onset. The most commonly described symptoms are pain and paralysis in the affected limb, but these are not constant. The pain may be agonizing; like a burning sensation; or merely be "pins and needles" or other

paraesthesiae. A variety of symptoms can occur : the limb may feel "cold and numb," "as heavy as lead," "as though it were gripped in a vice," etc. Together with any of these there is often loss of voluntary movement. But, whatever the symptoms, they are of sudden onset in the majority of cases, and when they occur in patients known to be suffering from mitral stenosis or other aetiological condition the diagnosis of embolism should be made and the patient sent to hospital, or other place where operative treatment can be undertaken.

Objectively the limb is cold from 1 to 2 in. below the site of lodgment of the embolus (see Fig. 3). Pallor or cyanosis may be evident, and there may be mottling or lividity below a line of demarcation. Arterial pulsation is absent distally, while pressure over the site of the embolus causes pain. Below it there may be loss of cutaneous sensation, and the deep reflexes may be absent.

The one other lesion which may really simulate embolism is an arteriospasm. This can be definitely excluded only by use of the Pachon oscillograph (Atlas, 1942), but this machine is seldom available. Graham (1937) has employed papaverine hydrochloride to relax vasospasm ; but since this has no effect on embolism its value can only be in diagnosis, and it should not be used unless facilities for immediate operative treatment are at hand.

As stressed above, it is the time factor which is of the greatest importance, and this has been emphasized in all previous papers on the subject. Hamilton Bailey (1944) stresses that the occurrence of a peripheral embolus is as urgent a surgical condition as a perforated gastric ulcer.

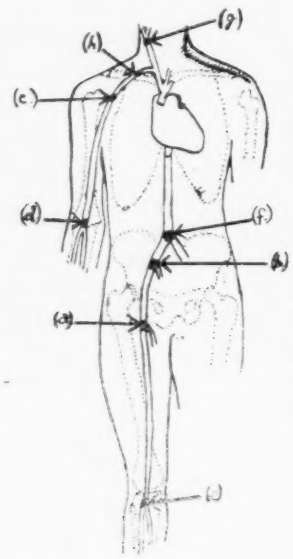

FIG. 3.—Usual sites of lodgment of peripheral emboli (after V. H. Riddell). 382 Swedish cases reviewed by Key, 1936.

(a) Femoral A. ..	54.4%	(18)	
(b) Iliac A. ..	17.2%	(2)	
(c) Axillary A. ..	11.8%	(1)	
(d) Brachial A...		(12)	
(e) Popliteal A...	11.3%	(5)	
(f) Aorta	4.5%	(7)	
(g) Carotid A. ..	—	(1)	
(h) Subclavian A.	—	(1)	

(Figures in brackets represent the distribution of the 47 emboli recorded in Great Britain.)

Cases are very often sent to hospital too late for surgical intervention ; Guthkelch (1943) mentions eight such cases seen at the Manchester Royal Infirmary. It would seem, therefore, with this and the Registrar-General's figures (see above) in mind, that many limbs—and lives—might be saved if early diagnosis and prompt surgical treatment could be instituted in these cases.

Case Report

On Jan. 2, 1945, a 43-year-old housewife awoke to find that both her legs felt numb. After some 30 minutes this wore off, and she remained comfortable until 10 a.m. on Jan. 4, when she experienced a "sudden agonizing pain in the left thigh" and noticed that her foot went "mauve." The pain continued, and by the next morning she felt as though her "thigh-bone was on fire" while her "flesh was numb like lead." On the evening of Jan. 5 she was admitted to hospital. The only relevant part of her history is the fact that she had had chorea at the age of 11, and that for some months before the present illness she had been getting more easily tired and out of breath, culminating in an attack of breathlessness and pain in the chest, which was taken to be coronary thrombosis, and for which she was being treated at home in bed, where she was when the pain in the leg started.

On examination she was found to have an advanced mitral stenosis, with a regular rapid pulse; B.P. 85/60. The left leg was white and cold from about 1 in. below the knee, with definite mottling of the skin of the foot. The femoral pulse was palpable on both sides at the groin, while the dorsalis pedis pulsation was palpable only on the right side. The left popliteal artery was tender to pressure and felt hard. Below the knee there was no cutaneous sensation, and the deep reflexes were absent.

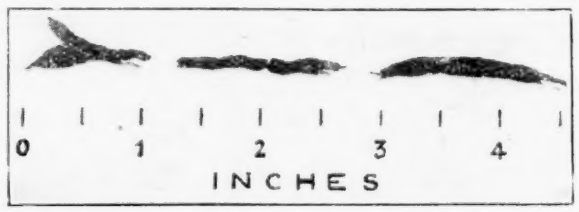

FIG. 4.—The embolus removed from the left popliteal artery. The first part, showing a bifurcation, was withdrawn from the distal end of the vessel.

Under local analgesia I exposed the popliteal artery, which was solid and in spasm. A small longitudinal incision was made in its lower part, and it was found to be filled with blood clot. Attempts to pick this up showed it to be friable. A fine rubber catheter, with its end cut off at an angle of 45°, was passed distally into the popliteal artery. A sucker was attached, and with the pressure at 76 cm. of water the catheter was slowly withdrawn, bringing with it the first part of the embolus, shown in Fig. 4. A flow of dark fluid blood followed. This was controlled with a tape passed around the vessel, and the above procedure was repeated in the proximal part of the popliteal artery. In this way the second portion of the embolus was delivered, but no bleeding followed. After several further unsuccessful attempts I decided to open the femoral artery, and this was done after dissecting it free in the lower end of Hunter's canal and closing the incision in the popliteal artery with a continuous suture of horsehair dipped in liquid paraffin. By means of the catheter as above the third part of the clot was removed, and this was followed by a torrential flow of bright red blood. While the flow was controlled by a tape the incision was closed, and on its release the vessel filled distally, but no pulsation was visible in the popliteal artery, which was found to be hard again. The first incision was reopened and fresh blood clot was removed and the artery resutured. This time it pulsated, and blood could be seen oozing through the needle punctures. Hot packs were applied, *and within five minutes the patient volunteered the statement that her foot was "tingling."* The wound was sutured and a drain was left in its lowest part. Twenty minutes later a good circulation was apparent by the rapid return of colour to the toes after blanching by digital pressure. In 24 hours the cutaneous sensation and deep reflexes had fully returned, and, apart from slight wound infection, convalescence was uneventful for three weeks. She then had started to get up and was able to walk a short distance. At this time she developed sudden abdominal pain. Apart from abdominal tenderness nothing was found on examination. There was good pulsation in both femoral arteries and also in both dorsalis pedis arteries. T. 101.2° F.; P. 98/min. regular. The possibility of a mesenteric embolism could not be excluded, and after several hours' observation without any improvement a laparotomy was carried out by a colleague, who found nothing abnormal. There was only slight pain the next day, and her convalescence continued to be uneventful. She was discharged home on Feb. 22, and is continuing her normal life so far as her cardiac condition will allow.

Treatment

As soon as peripheral embolism is diagnosed the limb should be lowered (not raised), and surrounded by ice-bags (not hot-water bottles), as the metabolism of the anoxic tissues must be reduced (Hamilton Bailey, 1944). Ideally, operative removal of the embolus should be carried out within 4 to 6 hours, but, as pointed out above, delay over this time need not preclude the possibility of recovery after embolectomy. No patient has been reported as having died owing to this operation, while the mortality rate in patients suffering from embolism of peripheral arteries has been put as high as 87% (Danzis, 1933) in those who have not been operated on.

Two other forms of treatment have been described : the first is conservative, and consists in the use of vasodilator substances (papaverine hydrochloride) and the application of alternating suction and pressure to the limb (Graham, 1937). Its value is dubious. The other method is surgical, and is arteriectomy. It was described first by Gosset *et al.* (1933) ; later Leriche *et al.* (1937) recorded 78 cases in which it was used, but although successful in some forms of arterial disease it was of little value in embolism.

The statistics for embolectomy, however, do show a reasonable chance of recovery in a person who is otherwise almost certain to lose a limb, and maybe his life. With this in mind it can be said that this form of treatment is the one that should be adopted in all cases of peripheral embolism, especially where the diagnosis is made early.

The recent advent of heparin (Murray and Best, 1938) may increase the chance of recovery still further, although a word of warning may be added here. For the first three days postoperatively the "specified dosage of 4,000 Toronto units" was injected intravenously daily, and at the end of this period the blood-clotting time was still only 3½ minutes at 37° C. As its further use did not seem to be indicated the heparin was discontinued. Its effect in this case was obviously unsatisfactory, and it seems that the dosage advocated will have to be increased, and in addition very careful laboratory control must be used. There is no doubt that this drug is valuable, however, as shown by MacFarlane's (1940) case, in which he performed four separate embolectomies in the same patient with complete success; similarly it had a marked effect on the clotting time of the blood in Hamilton Bailey's (1944) case.

Summary

A brief history of the use of the operation of embolectomy is given, together with the results obtained in the past; a special note about the British cases on record is included.

The aetiology, diagnosis, and treatment of peripheral embolism are discussed.

A further case is added to the records: successful popliteal and femoral embolectomies 39 hours after the lodgment of the emboli.

I would like to express my thanks to Mr. Harold Dodd, F.R.C.S., for permission to record this case.

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Each of the above authors has described one or more cases of peripheral arterial embolectomy in Great Britain.

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The report for 1944 of the Kashmir Medical Mission of the Church Missionary Society has been received from Srinagar. The year is noted as an "absolute record" for this hospital, which, for many years under the guidance of Dr. E. F. Neve, has been regarded as one of the foremost medical missionary institutions in India. Over 48,000 visits of patients were recorded in the out-patient department and 2,707 were admitted to the wards. Though the valley of Kashmir enjoys one of the best climates in the world, the insanitary habits of the Kashmiris have not changed in the passing centuries. Outbreaks of cholera, dysentery, and typhoid persist and make possible the devastating epidemics which from time to time occur. The report is a good record of how war difficulties have been overcome—shortage of staff as also of drugs and dressings.

HIGH-COLOUR-INDEX ANAEMIA DUE TO VITAMIN C DEFICIENCY

BY

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During the spring and summer of 1943 four severe cases of adult scurvy associated with a high-colour-index anaemia of varying severity were admitted to St. Alfege's Hospital. They were all males, aged 70–80, old-age pensioners who were living alone. The diet in each case was markedly deficient in vitamin C. The most severe case ended fatally from heart failure soon after admission, but the other three responded satisfactorily to ascorbic acid. Cases 1 and 3 had hydrochloric acid present in the gastric juice in normal amounts. In the other two the gastric juice was not examined. They all received a mixed hospital diet, but were not given haematinics such as liver, iron, or vitamin B complex; yet the anaemia responded satisfactorily to saturation with ascorbic acid.

Case Histories

Case 1.—A man aged 72 was admitted on Aug. 24, 1943, with extensive bruising and purpura on the backs of his lower limbs. The spontaneous bruising had appeared three weeks previously and was becoming more extensive. He was edentulous, and his gums were unaffected. His diet had consisted almost entirely of bread, margarine, a little jam, and stewed meat, but almost no potatoes or greens. He was anaemic, and the capillary fragility (Hess) was raised. The blood count on admission was: R.B.C., 2.4 millions; Hb (Haldane), 60%; C.I., 1.25; average diameter of R.B.C., 8 μ; reticulocytes, 0.8%; platelets, 144,000 per c.mm.; W.B.C., 5,000 (polymorphs 82%, lymphocytes 10%, monocytes 8%); bleeding and clotting times normal. Hydrochloric acid was present in the gastric juice in normal amounts. He was saturated with 11.2 g. of ascorbic acid intramuscularly in 16 days. The bruising and purpura began to fade in a few days, and rapid improvement resulted. The capillary fragility test became normal in three weeks. The anaemia responded satisfactorily, as shown:

24/8/43:	R.B.C., 2,400,000;	Hb, 60%;	C.I., 1·25;	W.B.C., 5,000
9/9/43:	R.B.C., 3,250,000;	Hb, 74%;	C.I., 1·13;	W.B.C., 5,600
17/9/43:	R.B.C., 4,300,000;	Hb, 86%;	C.I., 1·0;	W.B.C., 6,000

The maximum reticulocyte count was on 1/9/43, when it was 1.6%.

Case 2.—A man aged 79 was admitted on July 2, 1943, with severe bruising and purpura, especially of his gums and the left lower limb, the latter being also swollen. The papillae of his tongue were atrophied. He was markedly anaemic, and the capillary fragility was raised. His diet had been deficient in greens and potatoes, and had consisted almost entirely of bread, margarine, cheese, and meat pies. After saturation with 9.1 g. of ascorbic acid intramuscularly in 13 days, rapid improvement resulted. The capillary fragility test became normal after one month. He refused a gastric-juice examination. The anaemia responded satisfactorily, as shown:

3/7/43:	R.B.C., 2,080,000;	Hb, 54%;	C.I., 1·2;	W.B.C., 4,500
16/7/43:	R.B.C., 3,500,000;	Hb, 58%;	C.I., 0·83;	W.B.C., 3,800
23/7/43:	R.B.C., 4,100,000;	Hb, 72%;	C.I., 0·88;	W.B.C., 4,700
15/9/43:	R.B.C., 5,650,000;	Hb, 108%;	C.I., 0·95;	W.B.C., 9,000

Case 3.—A man aged 76 was admitted on May 29, 1943. Three weeks previously he noticed spontaneous bruising of his upper and lower limbs, which became more extensive and confluent. His gums were normal (he was edentulous), but he had numerous petechiae in the mucous membrane of his mouth. His diet had consisted almost entirely of bread, margarine, and cheese. He was markedly anaemic, and the capillary fragility was raised. He was saturated with 11.2 g. of ascorbic acid intramuscularly in 12 days. After a few days of this treatment the ecchymosis and purpura began to fade and rapid improvement took place. The capillary fragility test became normal in six weeks. Hydrochloric acid was present in his gastric juice in normal amounts. The anaemia responded satisfactorily, as shown:

31/5/43:	R.B.C., 1,700,000;	Hb, 38%;	C.I., 1·11;	W.B.C., 2,500
10/6/43:	R.B.C., 2,540,000;	Hb, 50%;	C.I., 1·10;	W.B.C., 2,180
5/7/43:	R.B.C., 3,100,000;	Hb, 74%;	C.I., 1·20;	W.B.C., 3,000
14/9/43:	R.B.C., 3,870,000;	Hb, 84%;	C.I., 1·07;	W.B.C., 4,500

He died as a result of myocardial degeneration and congestive heart failure on Oct. 30, 1943.

Case 4.—A man aged 79 was admitted on May 5, 1943, with a history of three months' spontaneous bruising of his upper and lower limbs. His diet had consisted almost entirely of bread, margarine, and cheese. On admission he was found to have extensive bruising and purpura of his upper and lower limbs. His gums were spongy and bruised, and they bled easily. The capillary

fragility was markedly raised, and he was markedly anaemic. The blood count was: R.B.C., 1.35 millions; Hb, 28%; C.I., 1.04; W.B.C., 3,000. He died five days after admission as a result of congestive heart failure.

Comment

About 70% of cases of scurvy have an associated anaemia, according to Mettier *et al.* (1930). Although most cases described are normocytic, reports of cases of scurvy associated with macrocytic anaemia have been described previously by Parsons (1938)—two cases of infantile scurvy; Dunlop and Scarborough (1935), Nisenson and Cohen (1937), and Jennings and Glazebrook (1938)—one case each of adult scurvy. Perhaps the severity and duration of the clinical scurvy determine the nature of the anaemia. Thus a comparatively early and mild case would have a normocytic anaemia, and a more severe and long-standing case which may interfere with maturation of the red blood corpuscles at an earlier stage would have a macrocytic or even an aplastic anaemia. It is of interest in this respect to note that Wohlbach (1937) found the red bone marrow replaced by homogeneous amyloid-like material in guinea-pigs fed on a vitamin-C-deficient diet for a long time. The bone marrow was studied by Jennings and Glazebrook in their case, and they found the appearances to be similar to that of pernicious anaemia.

Mettier *et al.* (1930) proved conclusively that the anaemia of scurvy responded to orange juice with a maximum reticulocyte response on the fifth to eighth day. Moreover, in two of their cases iron and liver had no effect on the anaemia. Mettier and Chew (1932) cured the anaemia of scurvy in guinea-pigs by orange juice. Dunlop and Scarborough (1935) confirmed the specific effect of vitamin C on the anaemia of scurvy by giving their patients a diet similar to that which produced scurvy, and the anaemia responded satisfactorily to ascorbic acid. One of their patients had a high-colour-index anaemia.

Whether subclinical scurvy can produce anaemia or not is uncertain. Dyke *et al.* (1942) described three cases of "irresponsive" pernicious anaemia which improved when ascorbic acid as well as liver was given. They did not, however, give details of the diet of their patients. It would, however, seem reasonable to treat cases of macrocytic anaemia having a history of vitamin C deficiency with ascorbic acid, particularly if hydrochloric acid is present in the gastric juice, before a diagnosis of refractory anaemia is made.

In the group of cases described above vitamin C deficiency appears to have been responsible for the high-colour-index anaemia. It may be argued that some factor in the hospital diet could have been responsible for the improvement in the anaemia and not the ascorbic acid. I consider this unlikely, since the diet did not contain any liver; and iron and the vitamin B complex, the other recognized haematinics, were not present appreciably above minimal requirements.

Summary

Four cases of "bachelor scurvy" associated with a high-colour-index anaemia are described.

The scurvy as well as the anaemia responded satisfactorily to ascorbic acid given intramuscularly and a mixed hospital diet in three cases, without the addition of haematinics such as liver, iron, and vitamin B complex. Vitamin C deficiency is considered to have been the cause of the anaemia.

It is suggested that ascorbic acid therapy should be tried in cases of macrocytic anaemia whose diets are deficient in vitamin C, particularly if hydrochloric acid is present in the gastric juice before a diagnosis of refractory anaemia is made.

My thanks are due to Dr. B. A. Young, medical superintendent, and the medical and nursing staff of St. Alfege's Hospital, especially Sister V. Sinclair, for their co-operation, and to Dr. E. N. Allott, of the Lewisham Group Laboratory, and Mr. J. Puxley, laboratory technician, St. Alfege's Hospital, for the pathological investigations.

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Medical Memoranda

Treatment of Human Cutaneous Anthrax with Penicillin

In view of the fact that few clinical reports of the treatment of human anthrax by penicillin have been published the following case may be of interest.

Case Record

An old, well-nourished, well-preserved ex-chief, a large cattle-owner, aged about 70, was admitted to hospital on May 4, 1945, with a history of a swelling in the neck of five days' duration. On examination there was a large fairly painful indurated swelling below the left jaw, covered by a black eschar about 3 by 1½ in.; much oedema and induration surrounded this area, spreading particularly round the front of the neck. A smear from the edge of the eschar showed anthrax bacilli, no other organisms being seen. The patient was very ill; his temperature was 102.2° F., the pulse was poor, and he was mentally very confused; the lower margin of the spleen was at the level of the umbilicus, was moderately soft, and was painful on palpation. The blood slide was negative on two occasions for malaria parasites.

In spite of the fact that, in general, anthrax lesions in this part of the world respond well to N.A.B., it was decided, in view of his age and his very poor general condition, to give penicillin. This was accordingly started. 20,000 units of the sodium salt being given intramuscularly, followed by 10,000 units three-hourly by the same route, to a total of 200,000 units. Fluids at the rate of about 4 pints a day were given—at first by a gastric drip, and finally by mouth.

The clinical response was remarkable. Sixteen hours after administering penicillin the temperature was normal, induration and oedema surrounding the lesion were markedly less, the spleen had contracted slightly, and the general condition was much improved. The eschar appeared to be drier but slightly bigger. The penicillin was stopped 54 hours after its start. By this time the patient's general condition was very good, the induration and oedema of the neck had completely disappeared, the temperature had remained normal, and the spleen had contracted by about 1½ in.; smears from the lesion revealed no anthrax bacilli, and no other organisms were seen. Over the next two days the eschar separated, leaving a large ulcer about 4 by 1½ in. with a clean but deep granulating base; the spleen had contracted by 2 in. from its initial size. Unfortunately, on May 12 the patient developed a pneumonic consolidation of the base of the right lung, associated with a recrudescence in temperature and accompanied by severe hiccup; this responded rapidly to sulphathiazole, the hiccup being controlled by morphine. At the time of writing, May 21, the patient was convalescent, and the ulcer had nearly healed.

Comment

Both the malignant pustule and small outbreaks of intestinal anthrax, contracted from eating infected meat, are fairly often met with in this district. In general, the malignant pustule does not appear to have the same severity as cases encountered in England; and, as has already been said, these cases respond well to large doses of N.A.B. The infection in question, however, was of a particularly severe type in an old man, and the prognosis seemed to be very poor. In addition it appeared that the condition was becoming generalized, although no anthrax bacilli were seen in any of the blood slides. The patient lives in a hyperendemic malarial area, and it was known that he had had splenomegaly previous to the onset of the disease. His blood slide on five occasions within the first three days of admission was negative for malaria parasites, and it was thought that the changes in the size of the spleen were more likely to be due to an anthrax septicaemia than to a malarial relapse. He was given no antimalarial therapy.

The improvement shown after starting penicillin was dramatic. Since treating this case I have read an extract describing the treatment of three cases of human cutaneous anthrax in the United States by Murphy *et al.* The American authors recommend that 200,000 to 400,000 units should be given at the rate of 100,000 units in 24 hours to the average adult, and they appeared to favour continuous intravenous infusion of the drug. In the case described above, 200,000 units, given over 54 hours by intramuscular injection every three hours, were quite sufficient to obtain a prompt and lasting response, the general condition of the patient and the local condition of the pustule being greatly improved after the first 100,000 units.

I would like to thank the Acting Director of Medical Services, Kenya, for permission to publish this note.

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Native Civil Hospital, Kerugoya, Kenya.

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Reviews

DIFFERENTIAL DIAGNOSIS

An Index of Differential Diagnosis of Main Symptoms. By Various Writers. Edited by Herbert French, M.D., F.R.C.P., assisted by Arthur H. Douthwaite, M.D., F.R.C.P. Sixth edition. (Pp. 1,128; 798 illustrations, of which 231 are coloured. £4 4s.) Bristol: John Wright and Sons.

The publishers are certainly to be congratulated on producing a sixth edition of French's *Differential Diagnosis* in wartime. The book is beautifully printed and easier to handle than pre-war editions. There are large numbers of photographs, radiographs, and coloured pictures, all of which are excellent reproductions, and there is a full index. The middle-aged critic cannot easily forget the fascination with which he first turned the pages of this book immediately after the last war, and he must wonder what will be the reaction to it of the present generation of students and housemen. It is not easy to keep up to date a work which first took form 33 years ago. Disease, it is true, remains much the same, but the background against which it is enacted and the methods by which it is viewed are very different. We are not now so passionately interested in the differential diagnosis of rare and incurable diseases, and the subtle distinction between a chylous and a chyliform effusion leaves most of us rather cold; the matter can rarely be of much individual or general importance. In 1912 it was still perhaps fashionable advice to leave physiology behind when one entered the wards and to adopt the outlook of the collector or, at best, the field naturalist. Nowadays we think in terms of altered physiological processes and biochemical tests, rather than the long lists of causes of symptoms which Dr. French and his collaborators have compiled. It would be possible for the student to read the section on ascites without appreciating the fundamental importance in diagnosis of trying to determine the systemic venous pressure, the portal pressure, and the serum proteins. Here, too, constrictive pericarditis is very incompletely displayed. Under lardaceous disease the value of the Congo-red test is not discussed, and under lymphadenopathy the impossibility of diagnosis without biopsy is inadequately stressed. The section on pigmentation of the mouth is a very sound bit of clinical writing, beautifully illustrated, but special tests for Addison's disease, such as *x*-ray examination of the lungs and suprarenal glands, or measurement of the ability to retain sodium, are omitted. Under acute yellow atrophy, on the other hand, tests for leucine and tyrosine in the urine are recommended, though the modern emphasis is on clinical features, such as persistent vomiting, nervous symptoms, and ascites, and examination of the urine is of little value. Homologous serum jaundice does not appear to be mentioned.

The technique of clinical diagnosis by personal observation reached its heyday in the age of therapeutic nihilism, when diagnosis seemed an end in itself. To-day, diagnosis is merely a means to an end, and this is why scientific precision, short cuts, and laboratory data are the rule of the day. We may lament the passing of the clinical diagnostician as of other craftsmen, but we have to remember that the modern patient with pneumonia expects to be nursed in hospital, and the modern houseman expects to be able to *x*-ray such a patient on the way to the ward and begin treatment at once with a sulphonamide drug. French's *Differential Diagnosis* contains much that is of immense professional interest and of undoubted value to the student, but it is doubtful whether it accurately reflects the diagnostic practice of the active physician of the present day.

NEUROLOGY

Diseases of the Nervous System Described for Practitioners and Students. By F. M. R. Walshe, M.D., D.Sc., F.R.C.P. Fourth edition. (Pp. 360; illustrated. 15s. plus 7d. postage.) Edinburgh: E. and S. Livingstone. 1945.

The fourth edition of Dr. Walshe's small textbook on nervous diseases has appeared when book production is in a most difficult period. The demand for it shows that the student and the practitioner have appreciated what a useful survey of a complicated subject has been given to them.

Dr. Walshe is distinguished for his sound if conservative common sense, and has always refused to be led away by new speculations and enthusiasms until they have stood the test of time. Especially is this the case with reference to the psychological approach. In this edition he refers to psychosomatic conditions but gives very little space to their consideration. For example, he still treats with scorn the psychological explanations of enuresis in children, saying that the syndrome points to a hypothalmic dysfusion, is therefore physiological, and the children are just made like that. He admits that treatment along physical lines is seldom successful, and hopes that the symptom will disappear at the age of twelve. He ignores the possibility that the hypothalamic dysfunction may be psychogenically determined and the fact that psychological treatment does very often remove the symptom.

New material has been added in the section on the peripheral nerves, and the relation of sciatica to rupture of the intervertebral disk is discussed. The author believes that a nucleus pulposus syndrome does exist, but very properly warns his readers against attributing all cases of sciatic pain to this lesion. Of the ultimate usefulness of such procedures as frontal leucotomy he is sceptical, and he deprecates newfangled terminology and the stressing of complicated and rare combinations of symptoms in neurology which serve more as a vehicle for the name of the physician who first described them than as a clarification of the mind of the practitioner who has to treat his patient.

This book has done and will continue to do much to bring the "mysteries" of neurology down to the general commonsense level of the rest of medicine, and is therefore much to be commended.

FOSTER HOMES FOR MENTAL PATIENTS

Foster Home Care for Mental Patients. By Hester B. Crutcher. (Pp. 199. $2.00 or 11s. 6d.) New York: Commonwealth Fund; London: Oxford University Press. 1944.

The use of foster homes for the care of various types of mental patients is by no means unknown in this country. The Lunacy Laws recognize the principle of single care supervised by the Board of Control. Mental defectives are boarded out, and the work of the foster home placement bureau of the National Association for Mental Health is well established. This activity has not, however, been developed by responsible authorities on any large scale, though such development may be required and demanded in the near future.

Hester Crutcher's book describes the methods and results of this work in America and especially in the State of New York, and it will be extremely useful to all those concerned with the project. Results are highly promising, as is shown by statistics of the returns to hospitals and release on parole of those placed in family care. The service is economically and administratively the responsibility of the hospital, but at least in some cases it is less expensive in terms of money than retention in hospital even of the non-recoverable quiet cases. The foster home is still more economical when regarded as a special form of treatment for recoverable cases, if it is compared with other treatments such as shock therapy.

The method of selection of patients and homes is carefully described, for on the success of this the whole service depends. The rival claims of the colony system, such as that of Gheel in Belgium and Dur-sur-Auron in France, and the district system more favoured in the United States are discussed, and several illustrative case histories are given. Finally the forms and procedures used are illustrated.

Miss Crutcher is to be congratulated on giving a lucid, non-technical, and very readable account of the admirable service which she directs. This book should be on the reference shelves of all who are concerned with the mentally sick.

Notes on Books

Though this is not stated in a booklet called *Getting to Know your Baby*, by Dr. D. W. WINNICOTT (William Heinemann; 1s.), the six essays appear to have been broadcast talks. The author's particular views will not be accepted by everyone, but he has a quiet sincerity which demands respectful consideration.

Commended by Miss Florence Horsbrugh, the latest publication of the St. John Ambulance Association is *Child Welfare* (St. John's Gate, Clerkenwell, E.C.; 2s. 6d.), by Dr. HILDA M. DAVIS. In just over three hundred small pages she has packed a great deal of well-written and accurate information suitable for all those concerned with the care of children.

Preparations and Appliances

A TECHNIQUE OF DRILLING THE GLENOID IN BANKART'S OPERATION FOR RECURRENT DISLOCATION OF SHOULDER

Surg. Cmdr. P. B. MORONEY, M.Ch.(Orth.), F.R.C.S., R.N.V.R., writes:

In 1923 for the first time Blundell Bankart described the displacement of the anterior rim of the fibro-cartilage, which enlarges the shallow glenoid cavity, as the essential anatomical lesion responsible for recurrent dislocation of the shoulder-joint. Again in 1938, reporting detailed operative technique and results of twenty-eight consecutive operations, he found no relapses and that full shoulder movements were retained.

For full service duties a secure shoulder is essential, and in the operative treatment of 27 patients, mainly sailors, Nicola's operation was abandoned following one early relapse. After changing to Bankart's exposure in the last eleven of these patients great difficulty in securing primary reposition of the capsule and cartilage flush with the anterior rim of the glenoid was experienced. This critical part of the operation requires the formation of two pairs of short, narrow canals in the bone margin and the introduction of two mattress sutures through them. Once accomplished, anchorage of the capsule to bone is easy. A sharp vulsellum worked through the bone, as described by Bankart, was not mechanically satisfactory in my experience; for the bone being remarkably hard the canal is apt to split by the rocking of the vulsellum forcing its passage, and there remains the difficulty of passing the suture through.

In the last seven operations the following apparatus has very considerably facilitated and hastened this part of the operation, which is performed after bony scarification. A right or contra-angled dental handpiece, coupled to the flexible driving cable of an electric motor, enables a short morse twist drill to be operated and directed in the depths of the wound (Fig. 1). The drill is made to the following specifications: when fitted to the handpiece its effective length is 3/4 in. and its bore 2/32 in. One quarter of an inch from the tip a slot, to a depth of a quarter of the circumference, is cut obliquely towards it at 45° inclination to the long axis of the drill (Fig. 2). A short, narrow canal is readily drilled, while an assistant, by strong outward leverage on the arm, clears the humeral head.

To engage a suture in the slot which on withdrawing the drill will pull it through, two guides are used, and make the operator independent of the direction of the face of the notch when the drill has come to rest. Pigtail-shaped, they are easily fashioned out of Kirschner wire. In use they render tense a very short length of suture material, which may then be depressed behind the drill and engagement in the slot follows. Pulling back (not rotating the drill) the handpiece takes the first suture end through a canal and with the other end the procedure is repeated (Fig. 3).

The cable has been autoclaved, but may be protected by a sterile calico sleeve. The remainder of the apparatus must be sterilized by heat, the dental handpiece being lubricated with sterile liquid paraffin before assembly. Unnecessary kinking of the flexible cable is avoided by placing the motor on its stand about 2 feet above the level of the operative field.

In all of the eleven cases the typical Bankart lesion was found, and in several a postero-lateral deformation of the humeral head could be visualized in the fuller exposure afforded by his arthrotomy.

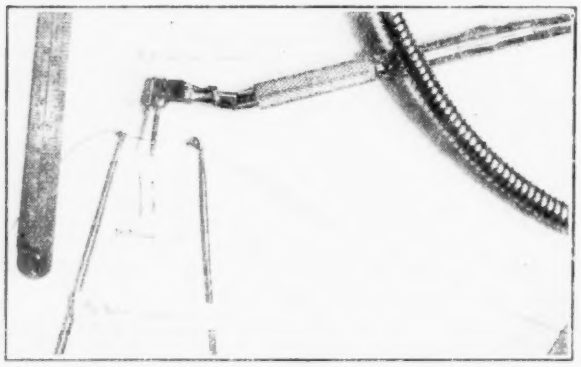

FIG. 1.—The assembled apparatus (motor not shown).

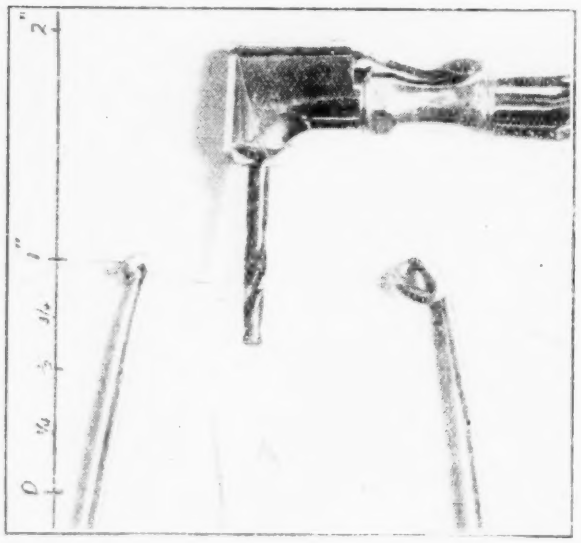

FIG. 2.—The slotted drill and pigtail guides. Scale of one inch as shown.

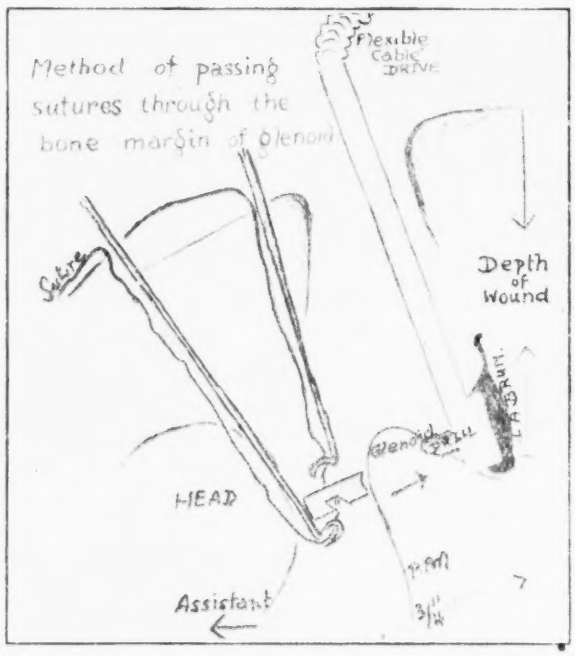

FIG. 3.—Juxta-articular bone has been scarified. A suture with the aid of guides is engaged in the slot and, using the drill as a carrier, is withdrawn mesially.

The notched drills and pigtailed guides have been made for me by Messrs. Down Bros. Ltd. The remainder of the apparatus is standard equipment. I gratefully acknowledge the helpful suggestions of Surg. Rear-Adml. R. F. P. Cory, the practical advice on the dental coupling of Surg. Lieut.-Cmdr. J. Barnett Roberts, R.N.V.R., and the production of illustrative photographs by Sick Berth Petty Officers Lucy and Styles.

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Ashe Laboratories Ltd., 120, Victoria Street, Westminster, S.W.1, state that they are, for the first time in this country, now able to offer supplies of "biotin," in the form of ampoules containing 25 γ in 1 c.cm. of sterile distilled water.

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PROBLEMS OF AVIATION MEDICINE

The Oliver-Sharpey lectures by Dr. B. H. C. Matthews, printed in this and last week's *Journal*, on the physiological problems of flying are so clear and fascinating that we shall not attempt to make a précis or paraphrase; they should be read in their entirety. In general terms it can be said that men cannot fly above 20,000 feet without a supplementary supply of oxygen, or above 40,000 feet without a pressure suit or cabin. At 40,000 feet the pressure of the atmosphere is only one-fifth of that at sea-level. It might be thought that the flyer could overcome this disability by breathing 100% oxygen instead of the normal 21%, but matters are not so simple as this, owing to the presence of a constant pressure of water vapour and carbon dioxide in the lungs. In fact, at 50,000 feet water vapour and carbon dioxide will completely fill the lungs unless the aviator adopts the tactics of the submariner and surrounds himself with a pressure suit or a pressure cabin. The other limit to high flight is the occurrence of decompression sickness, or "bends," due to the formation of bubbles of gas in the body fluids and tissues when the atmospheric pressure is so greatly reduced. Finally, high flight is at all possible only if the body is protected from cold. At 40,000 feet the temperature of the air is −55° C., and destructive frost-bite occurs if the hands are exposed for more than a few seconds. The stratosphere airplane compresses the air to a pressure corresponding approximately to a height of 10,000 feet. It therefore corresponds with the pressure coil of a refrigerator and is a warm aircraft. The engineering difficulties are considerable, and the penalties of explosive decompression are obviously severe—sudden exposure to an atmosphere of lunar temperature and pressure.

There is no visible limit to the speed of flight, provided the airman is protected from the wind and the flight is level and sustained. Trouble comes only from rapid acceleration and deceleration, such as arise in catapulted take-offs, tight turns at speed or crash landings, or from rapid changes in the pressure in the middle ear when the aircraft is descending at speed. One of the most remarkable observations is the entire absence of symptoms when the body falls freely in space, as in delayed parachute jumps—i.e., jumps in which the parachutist allows himself to fall freely for a time before opening the parachute. The velocity ultimately reached is about 120 miles an hour. It had often been assumed in the past that a man falling from a considerable height became unconscious before he reached the ground; on the contrary, he is as comfortable physically as if he were resting in a hammock, and sensations of motion or air are curiously lacking.

Dr. Matthews's lectures are of special significance because they illustrate the value of co-operation between the physicist and the biologist. The physicist may calculate that an airman exposed to the centrifugal force of a tight turn may have an apparent weight of half a ton. It is for the biologist to visualize the effects of this pressure on the aorta and the vertebral column. The physicist has likewise illuminated our ideas about the mechanism of concussion of the brain and suggested better methods of prophylaxis. As man explores his environment in ever more fantastic ways, both through invention of mechanical devices and through the desire to work under every type of climatic condition, whether in deep mines or Arctic icefields or steaming jungles, it becomes more and more essential for the human physiologist to extend the range of his observations and to observe every aspect of the effects on the human organism of the extremes of heat, light, pressure, humidity, and so forth, and in this type of work the help of the physicist is indispensable. But many physicists would go further than this. They would say that the application of modern physical techniques to biological problems is likely to yield as rich a harvest as has already been reaped from the application of biochemistry to medicine. At present the application of physics to medicine is limited to radiology, the electrocardiograph, and the electroencephalograph in diagnosis, and the somewhat empirical use of various forms of radiant energy in treatment; but it is highly unlikely that these represent more than a fraction of the contribution physics might make to human biology.

The value of co-operation between biologist and physicist may be mutual. A sports car has been defined as a car which combines the maximum of smell and noise with the minimum of comfort. A similar type of criticism can be applied to many of the inventions of the physicist and the engineer—that they leave the human element out of consideration. It is impossible, for example, to design a night-fighter aircraft or employ it to the best advantage without knowing something about the physiology and pathology of night vision. The idea is now generally accepted, but this has happened only recently, and there are many fields of applied physics and engineering to which it still does not apply. It must be constantly emphasized that any machine or apparatus which is to be used by men and women, whether in warfare or in industry, presents a biological problem which is at least as important as the problems of cost and mechanical efficiency—the applied physiologist must therefore be consulted through the various stages of design and application. Dr. Matthews also points out that the study of the physiological problems of the airman may yield knowledge of value in other fields. The clinical observer who has seen demonstrations of the effects on the human organism of abnormal tensions of the different atmospheric gases cannot have failed to be struck by the resemblance of the phenomena to those of mental disease. It does not seem unreasonable to suppose that morbid anxiety, depression, or elation may be due to variations in the concentrations of simple substances such as oxygen and carbon dioxide in the nerve cells, perhaps as a result of a metabolic defect or a break in a chain of fermentation reactions. In the past the study of brain chemistry has perforce had to be limited to isolated tissues or laboratory animals, but the experience which has been gained with

the decompression chamber and the diving-bell suggests that similar techniques might prove fruitful in studying the psychological effects of changes in the metabolic condition of the human brain in health and disease.

During the war physiologists, clinical scientists, and psychologists have, by the urgency of the need, been drawn to work on the personnel problems of mechanized warfare. After the war this sense of urgency may diminish, and other problems may seem more attractive. The fine quality of the research carried out by teams such as Dr. Matthews's has been largely due to the fact that applied research was being performed by workers who had been trained in fundamental methods. The resultant acceleration in the advance of knowledge can be compared with the phenomenon of hybrid vigour; it is something that can happen only once in a generation. The research worker must return to his fundamental studies and his academic teaching to renew his strength. Yet it will be disastrous for this country if research on the problems of modern warfare peters out as it did in the decades between the two wars. There is little to suggest that the needs of civil aviation are sufficient to keep interest alive, any more than the needs of peacetime motoring are adequate for the study of the physiological problems of tank warfare. Interest in Service problems can be maintained only by emphasizing their dependence on fundamental issues and their link with work in other fields. For this reason it seems essential that the medical and physiological departments of the Services should maintain active communication with the civil research institutes, the universities, and the departments of industrial health research if they are not to take up hedgehog positions in the battleground of science, where mobile warfare should be the order of the day.

NUTRITION IN NEWFOUNDLAND

The high incidence of malnutrition in Newfoundland has long been a blot on our colonial administration. Presumably nutrition is nobody's business, and so, little has been done to remedy the poor conditions in that island. The Government of Newfoundland has at last been moved to action by the Nutrition Council of the Newfoundland Medical Association, who recommended that a nutritional survey of the country be made. This was done last year, and the results have been recently published.[1] They make depressing reading. That the public health in Newfoundland is far from satisfactory is evident from the high infant mortality (107 per thousand live births) and the high prevalence of tuberculosis. Radiological evidence of active pulmonary tuberculosis was obtained in 7.2% of nearly 4,000 unselected individuals; calcified lesions were present in an additional 13.7%. While malnutrition is not the exclusive cause of these high figures, it undoubtedly plays a big part.

The diet consumed by the large majority of the inhabitants of Newfoundland is poor and monotonous, and the consumption of protective foods such as meat, eggs, milk, and vegetables is low. The only food that appears to be plentiful is fish. Assays of many of the foods eaten were made and the daily intake of essential nutrients calculated. These are given in the following table and compared with those recommended by the Food and Nutrition Board of the National Research Council, U.S.A. The latter figures have been adjusted to represent the requirements of the population as a whole.

Calories and Nutrient	Average Daily Consumption in Newfoundland	Daily Consumption Recommended by Nat. Res. Council, U.S.A. (adjusted)
Calories	3,000	2,544
Protein	94.4 g.	66.1 g.
Fat	75.4 g.	—
Calcium	360 mg.	960 mg.
Iron	10 mg	12 mg.
Vitamin A	1,146 I.U.	4,590 I.U.
Vitamin C	20 mg.	75 mg.
Vitamin B_1	0.96 mg.	1.45 mg.
Riboflavin	0.8 mg.	2.1 mg.
Nicotinic acid	14.6 mg.	14.5 mg.

With the exception of calories, protein, and nicotinic acid, all the figures fall short of the recommended intake suggested by the National Research Council.

All those included in the survey were examined clinically, with particular reference to scalp, hair, eyes, skin, lips, gums, tongue, and peripheral nervous system. The average person examined was somewhat slow mentally and lacking in initiative. This was particularly noticeable in the children, most of whom appeared apathetic and subdued, and in attitude and behaviour resembled little adult men and women. All subjects seemed older than their years. The skin of the children lacked elasticity and looked like that of adult men and women. "Staring" hair—i.e., dry, coarse, straight, and lustreless hair—was observed in 10% of the persons examined. The adults were, generally speaking, under weight, although the weight of the children did not differ appreciably from that of children of comparable ages in Canada and Britain. Muscular development was poor in both sexes at all ages, and prominent or winged scapulae were noted in many subjects. Minor stomach ailments and constipation were common. Dental caries was widespread, the condition in many of the subjects being indescribably bad. Anaemia, as judged by haemoglobin estimations, was present in approximately 20% of those examined. There was a close parallelism between the dietary inadequacies and clinical findings. Lesions characteristic of deficiency diseases were seen chiefly on the skin of the face, body, and limbs; on the lips, gums, and tongue; and in the eyes. Neurological signs, possibly due to deficiency of vitamin B_1 and riboflavin, were observed in 6.8% of the subjects examined. Of all the deficiency states noted, those associated with a lack of vitamin A, riboflavin, and vitamin C were the most frequently encountered. The principal manifestations of vitamin-A deficiency seen were xerosis, follicular keratosis, and xerosis conjunctivae. Frank scurvy was not seen, but the subscorbutic state, with swollen, bleeding, and unhealthy gums, was common. Dyssebacia, blepharitis, lacrimation, photophobia, angular stomatitis, cheilosis, and glossitis, all of which are stated to be diagnostic of ariboflavinosis, were observed in many of the subjects. Patho-

[1] Adamson, J. D., *et al.*, *Canad. med. Ass. J.*, 1945, **52**, 227.

logical tongue changes were present in over a third of the cases. These were not ascribed to nicotinic acid deficiency, for it was thought that the intake of nicotinic acid was adequate.

The report ends: "The poor nutritional status of the people of Newfoundland may well be in large part responsible for their impaired health and efficiency." The climatic and agricultural conditions form perplexing difficulties in the way of improving the nutritional status of the population. The land is poor, transport is lacking, and most of the people are engaged entirely in the fishing industry. At one time a third of the population were on the "dole," as there was not enough work. Measures to improve the nutrition of the people of Newfoundland are under way, but it must be emphasized that nutrition is a many-sided problem that cannot be solved by any single line of approach. Without help from outside, improvement in the nutritional condition of the island is impossible.

FIFTY THOUSAND MEMBERS

The British Medical Association now has more than 50,000 members. The 50,000 mark was reached last week for the first time in the history of the Association. The 50 men who constituted the Provincial Medical and Surgical Association in its foundation year, 1832, were certainly men of vision, and if we, their successors, have feelings of pride in the position the Association has now reached, we should remember with gratitude and admiration the pioneer wisdom of Dr. (later Sir) Charles Hastings and his colleagues who propounded "objects of the Association" which have stood the test of time. It may be of interest at this moment to quote from the last number of the *Midland Reporter*—the full title of which was the *Midland Medical and Surgical Reporter and Topographical and Statistical Journal*—in which the formation of the Association was announced:

> "The present Number completes the third volume of *The Midland Reporter*, and with it the Work under the above name will terminate: as the Editors can now congratulate themselves and the Public upon having attained the great object which they contemplated at the commencement of their arduous undertaking. Their appeal to the public spirit, generous feelings, and pure love of Science, which so extensively pervade and dignify our noble profession, has not been made in vain. A wish has, in consequence, been warmly expressed and widely circulated, that the members of the profession residing in the Provinces should unite themselves into an association *friendly* and *scientific*; that this Association should have for its main object the diffusion and increase of Medical Knowledge in every department of science and practice, and that the valuable communications of its Members should, from time to time, appear in the shape of published Memoirs of the Society."

The *Reporter* gave way to the annual *Transactions* of the newly formed Association, but found its true periodical successor in the *Provincial Medical and Surgical Journal*, which appeared in 1840, the title of which was changed in 1853 to the *Association Medical Journal*, and again in 1857 to the *British Medical Journal*.

The Association was founded in the year which saw the passing of the first Reform Bill and the first of the four epidemics of Asiatic cholera which swept over this country during the nineteenth century. Of the five objects of the Association given in the prospectus of May, 1832, the first four can be summarized in these key phrases: (1) "Collection of useful information"; (2) "Increase of knowledge"; (3) "Investigation of . . . endemic and epidemic diseases"; (4) "Advancement of medico-legal science." The fifth embodied "the maintenance of the honour . . . of the profession . . . by promoting voluntary intercourse and free communication of its members, and by establishing the harmony and good feeling which ought ever to characterize a liberal profession."

The year 1946 may prove to be another great year of reform, which this time may vitally affect the medical profession. So long as the reform preserves the principles that "characterize a liberal profession," medical men and women will pursue their traditional aims and objects with "harmony and good feeling." The numerical strength of the B.M.A. is now such as to enable it to pursue its objects in full consciousness of its strength. How this strength has grown since the foundation of the Association is shown in the following table of membership.

1832	50	1906	20,993
1836	500	1925	30,524
1839	1,010	Sept. 2, 1939	39,121
1873	5,400	1942	41,239
1883	10,050	July, 1945	50,032
1895	16,000		

HISTOPLASMOSIS

Histoplasmosis, described first by Darling in 1905, is a mycosis affecting primarily the cells of the reticulo-endothelial system. The parasite, *Histoplasma capsulatum* Darling 1906, a small capsulated yeast-like body, 3 to 4 μ in the longer diameter, occurs in great numbers within the reticulo-endothelial cells, which are stimulated to hyperplasia. The granuloma formed tends to undergo central necrosis and provoke a peripheral fibrotic reaction. During the 20 years after Darling's discovery[1] of the first three cases in Panama in 1905–6 no further record of the disease appeared until Riley and Watson[2] described a case in the United States in 1926, and their report was followed quickly by others. DeMonbreun,[3] in 1934, reported his success in cultivating the fungus, and, with this additional means of diagnosis and the developing interest in mycoses, the number of cases reported annually in the United States greatly increased, and the disease was found in Argentina, Austria, Brazil, Central America, England, Mexico, the Philippines, and Rhodesia; this increase seems to be attributable to greater accuracy in diagnosis rather than to an actual increase in incidence.

The disease occurs sporadically and attacks persons of all ages; about 18% of the patients have been infants under 1 year old, and one patient was aged 71. There is no apparent seasonal incidence and no known occupational

[1] *J. Amer. med. Ass.*, 1906, **46**, 1283.
[2] *Amer. J. trop. Med.*, 1926, **6**, 271.
[3] Ibid., 1934, **14**, 93.

predisposition. Nothing is known of the source of infection. The fungus has never been found vegetating saprophytically in nature, but the disease has been identified on four occasions in the dog, and yeast-like bodies resembling *Histoplasma* have been seen in the tissues of the mouse,[4] the rate,[5] and the ferret.[6] The mode of infection is unknown, but it is thought that the fungus may gain entry through the lungs, the alimentary canal, or the skin.

The disease may attack one or several organs or tissues of the body, and all have been involved in some case or another. The symptoms and clinical features depending upon the distribution of the lesions, there is no characteristic symptomatology. Ulcerative granulomatous lesions of the lips, tongue, and other mouth parts, nose, pharynx, larynx, and intestine, may simulate tuberculosis or even malignant disease. Local or general enlargement of the lymphatic glands and the spleen may suggest leukaemia or lymphadenoma. Involvement of the lungs, especially in the form of miliary granulomata, has frequently led to the diagnosis of tuberculosis, while histoplasmosis of the adrenals may be reflected, clinically, only in the signs of adrenal insufficiency, and involvement of the bone marrow in anaemia. Three cases are on record of vegetative endocarditis, affecting the auriculo-ventricular valves, caused by *H. capsulatum*. In the majority of cases irregular fever, sometimes with chills and rarely with night sweats, develops in the later stages of the disease. The diagnosis, therefore, cannot be based on symptomatology, but depends upon the identification of the parasite in culture or in microscopical preparations from the lesion. The most suitable material for this purpose is tissue taken by biopsy from lesions of the skin or mucous membranes or superficial lymph nodes. Smears of the peripheral blood in the final stages of the disease, or of the sternal bone marrow, may contain the parasite, free or in phagocytic cells; but its occurrence is not so frequent as to make these examinations alone of much value in diagnosis. The best stains for demonstrating the parasite in morbid material are haematoxylin, Giemsa's stain, the Claudius modification of Gram's stain, and Masson's trichrome stain. Isolation of the fungus in culture is not difficult, but the development is slow and may take from eight days to three weeks. The fungus, in saprophytic life, is dimorphic; cultures incubated at 37° C. on blood agar and certain other media vegetate as a simple yeast resembling the parasitic form, but at room temperature the fungus vegetables in a mycelial form with a profuse aerial growth bearing terminally on short branches the characteristic piriform to spherical chlamydospores measuring from 3 μ to 15 μ in diameter, and having on the surface numerous prominent tubercles or finger-like processes. If, because of gross contamination of the tissue, direct cultivation is impracticable, it may be isolated by inoculation of the material into a susceptible animal such as the mouse, rat, or guinea-pig. A possible aid to diagnosis may be developed in tests of dermal hypersensitivity to filtered extracts of cultures of the fungus.

The prognosis is bad, for the disease is almost inevitably fatal, the duration being reckoned in months or even weeks. All forms of treatment have given disappointing results, but radiotherapy and the use of some pentavalent antimony compounds may prove helpful in early and localized superficial infections. In assessing the value of treatment, however, the possibility of spontaneous improvement should not be overlooked; in the second English case the patient was alive and in apparently good health two years after conclusive diagnosis.

[4] *Indian J. med. Res.*, 1923, **10**, 908.
[5] *Pathologica*, 1922, **14**, 493.
[6] *Cornell Vet.*, 1938, **28**, 249.

HELP FOR THE DEAF

As announced in our news columns this week, a deafness clinic has recently been set up at the National Hospital, Queen Square, where it is proposed to investigate and treat by means of hearing aids and other methods all forms of deafness, excluding those accompanied by active otitis media with ear discharge. The Otological Research Unit which is being established by the Medical Research Council at Queen Square will be under the direction of Dr. C. S. Hallpike, aural physician to the National Hospital and a member of the Medical Research Council's scientific staff and of its Electro-acoustics Committee.

Through its committee on the physiology of hearing the Medical Research Council has for some years been concerned with the problems of deafness, and in order to probe further into this distressing complaint it has recently formed three research committees—one to deal with the medical and surgical problems of deafness, the second to consider the design and performance of electro-acoustic equipment, and the third to look into the education of the deaf. Recent correspondence in this *Journal* has made it clear that the provision of a suitable deaf aid at a reasonable cost and with easy maintenance is an urgent need among those whose deafness could be relieved in this way. The clinic at Queen Square, under Dr. Hallpike, is to examine this very question as part of the work of the M.R.C.'s Electro-acoustic Committee, and for this purpose needs as many deaf subjects as the clinic can deal with. Patients so investigated will of course have the advantage of expert advice and treatment, and practitioners, therefore, will be helping both them and the clinic if they refer to it their patients who require relief. Those wishing to take advantage of this should write to the Director, the Otological Research Unit, National Hospital, Queen Square, London, W.C.1.

THE I.A.M.C. JOURNAL

A new medical journal is nowadays something of an event, and when it comes off those with designs of their own murmur sadly, "I wonder where they got the paper from." The first number of the first volume of the *I.A.M.C. Journal* which has just reached us is, however, not published in this country but from the headquarters of the Indian Army Medical Corps at Poona. It appears in a handsome maroon cover with the badge of the I.A.M.C. attractively displayed in the centre of the page. Our first envy of the paper is diminished on finding that there are to be only two issues yearly—an unusual frequency in medical journals. The present and first number appears with a note of inauguration from Lieut.-Gen. Gordon Wilson, Director of Medical Services in India. "For the first time," he writes, "in the history of military medical organization in India we have a Medical Corps in which officers, warrant officers, N.C.O.s, and men have become unified. This is a great achievement full of the highest promise. . . . It is fitting that this unification should be symbolized by a journal, and we wish the Editor, Colonel D. R. Thapar, all success."

The contents of the first number suggest that the *I.A.M.C. Journal* combines the virtues of a scientific with those of a well-produced hospital gazette. It has photographs of various members of the I.A.M.C., including one showing Lord Louis Mountbatten shaking hands with an Indian orderly. We note with interest a short article written in Basic English, and that a group of instructors in the Army Medical Training Centre have been learning this linguistic system, so as to be able to spread knowledge of the English language among their Indian colleagues.

A TROPICAL DIETARY

BY

W. E. McCULLOCH, M.D.

(Kingston, Jamaica)

The dietary below was drawn up by me and accepted by the Nutrition Committee of the B.M.A. in Jamaica as an immediate target at which to aim for the population of the country, which is essentially an agricultural labouring community. With the committee's permission it is now submitted for comment, as it is felt that a quantitative minimal basic dietary based on tropical foodstuffs should be worked out as a guide to medical personnel in these areas.

The Position in Jamaica

We have recently had the pleasure of a visit from Dr. Platt, who is the adviser on nutrition to the Secretary of State for the Colonies. It has proved a great stimulus to us, and his standards for an immediate aim in nutritional policy have been accepted. The standards are included at the bottom of the table. The committee was set up at the invitation of the Agricultural Policy Committee for Jamaica, which sits under the chairmanship of Mr. John Wakefield, the Inspector-General of Agriculture in the West Indies, and among the terms of reference was the question whether Jamaica can produce all the foodstuffs necessary for a balanced diet.

Item (Edible Portions)	Amount		Calories	Protein (g.)	Ca (mg.)	Fe (mg.)	Vitamins				
	Oz.	Grammes					A (i.u.)	B_1 (mg.)	B_2 (mg.)	Niacin (mg.)	C (mg.)
Cereals:											
Wheat flour, 70%	4	125	439	12·5	20	2·5	0	0·07	0·06	1·25	0
Cornmeal (yellow), 98%	2	56	171	4·7	6	2·5	500	0·15	0·06	0·75	0
Rice (parboiled)	2	56	176	3·7	4	0·5	0	0·10	0·05	2·0	0
Starchy roots:											
Yams	16	450	450	9·0	45	2·2	0	0·22	0·27	3·2	?
Sweet potatoes (yellow)	8	120	150	2·5	25	0·8	5,000	0·12	0·07	0·6	25
Pulses:											
Beans	2	56	164	11·6	74	2·0	0	0·24	0·18	1·2	0
Peanuts	1	28	188	7·8	17	0·6	0	0·30	0·04	5·8	0
Meat or fish	2	56	106	10·2	6·8	2·0	22	0·06	0·14	2·8	0
Oils (dry)	2	56	510								
Sugar	1 lb. per week		280								
Molasses	½	14	27	0	35	8·0					
Vegetables:											
Citrus	3½	100 one orange or half grapefruit	28	0·35	20	0·35	0	0·35	0	0·2	52·4
Green leafy and yellow	4	112	48	4·6	156	2·6	10,000	0·16	0·28	0·64	15
Tomatoes, onions, fruit	1	28	9	0·3	8·5	0·1	57	0·01	0·03	0·03	4
Milk	4	112	76	3·6	138	0·3	760	0·20	0·20	?	0
Totals			2,822	70·85	555·3	24·45	16,339	1·98	1·38	18·47	96·4
Dr. Platt's standards			2,500	50–60	800	15	8–9,000	1·20	1·20	12–15	30

The main deficiencies in the Jamaican dietary at present, in the order of their importance, are protein, riboflavin, niacin, thiamine. It was found, using the Hot Springs Plan I as a yard-stick, that Jamaica would require over three million acres to feed herself on her present system of food production, even when half the cereal needs were met by importing wheat flour. The total cultivable land is given in the census as being about 700,000 acres.

It had to be borne in mind that the export crops must increase if Jamaica's economic position is to improve. The necessary corollary was the recommendation that there should be a complete revolution in the agricultural policy of the island and that the slopes of five-sixths of the country should be devoted to grass culture in the main, with a rapid expansion of the stall-fed dairy cow and small stock. Intensive mixed farming seems to be the only hope of the island.

During his visit to Jamaica Dr. Platt proposed a diet scale which would measure up to his standards by the addition of food yeast, calcium carbonate, and ferrous sulphate to the 70% wheat flour. I am still as much a believer in natural foodstuffs as ever, and accordingly the suggestion was not incorporated in the diet.

Comments on the Dietary

The following comments on the dietary are self-explanatory.

Cereals.—(*a*) Your committee considers that whole wheat should be imported and the milling done in Jamaica. Wheat offals are necessary for the production of small stock and milk. The recommendation of white flour is temporary. (*b*) We hope that the rice requirement will be met to the fullest possible extent by local production. (*c*) Only yellow maize should be grown, because it gives valuable vitamin A in large amounts. (*d*) The various sorghums are not mentioned. Their high digestibility is to be remembered. The "victory rice," which is a local sorghum product, was very popular with school-children, to whom one of us fed it for two school terms, and their general health improved. The development of these grains, especially dwarf guinea corn and pearl millet, should be pushed for both man and his animals.

Starchy Roots.—If there is not a constant supply throughout the year the calorific value of the diet will drop seriously. The large amount of vitamin A expected from yellow sweet potato is to be noted.

Pulses.—Beans, peas, peanuts, and soya beans can be regarded as the "poor man's meat" and must be pushed. An immediate improvement in the supply of first-rate protein is to be expected from these crops while meat production is being developed.

Meat or Fish.—Immediate improvement is to be looked for in the rapid development of small stock. We would stress the value of pork because of its quick production rate, high calorie (energy) content, and richness in vitamins B_1 and B_2.

Oils.—On the diet as submitted there is no necessity to have the oils and fats fortified with fat-soluble vitamins.

Sugar.—One pound a week is ample as a flavouring. The increased cereals and roots are the basic sources of carbohydrate energy.

Vegetables.—(*a*) *Green leafy and yellow* will not be eaten up to the ration without widest publicity. Although there is a good deal of "back-yard" cultivation, the total requirements will not be met by this method alone, and these vegetables must also be grown as field crops. (*b*) *Citrus:* One orange or half a grapefruit is a unit which can be handled easily. (*c*) *Other vegetables and fruits:* Our estimate is absolutely minimal. The large mango crop and the bananas and breadfruit are not calculated. They add considerably to the total, but their seasonal incidence precludes their inclusion in a daily ration. Bananas will be exported and not eaten (as before the war). The value of guavas, green peppers, pawpaw, and the avocado pear should be widely publicized.

Milk.—As an immediate target we recommend only one-fifth of the Hot Springs standard. The butter value of the milk is quite unnecessary in the present diet, and so we advocate the erection of creameries to extract the butter for export and the use of dried skimmed milk in the ration. No expansion of the manufacture of condensed milk should be permitted, as this island must find export crops, and butter would be no loss to the dietary of the people if it were manufactured and exported. In the first instance the skimmed milk should be used in giving children a midday drink, with two biscuits. One ounce of dried skimmed milk per child is recommended.

Molasses or Wet Sugar.—This is necessary for its iron content. In a tropical country which is full of parasitic diseases iron is probably the most important mineral constituent of the dietary, and the rich available iron in molasses should not go to waste. We recommend that the biscuit for the mid-morning snack should be made to contain at least one drachm of molasses. Expectant and nursing mothers should also be able to get these biscuits.

Calcium.—We are not afraid of the small amount in the dietary. In this country of sunshine there can be no lack of vitamin D, and so we assume maximal absorption of this element. As the diet supplies ample phosphates there will be the maximal utilization of these substances, and 100 mg. in excess of minimal maintenance requirements will be adequate.

EAST OF SUEZ*

BY

GEORGE R. McROBERT, C.I.E., M.D., F.R.C.P.

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[In his opening remarks the lecturer appealed to newcomers to the medical Services in India to readjust their mental outlook, to take a keen interest in the country, and to acquire a knowledge of its current problems. He stressed the importance of providing occupational or diversional therapy for soldiers who were in hospital, even if only for a few days, in a strange land without possibility of visits from friends and relatives. It would be found (he said) that the diseases of the temperate zones were all present there, practically always with protozoal, helminthic, and fungous infections superadded to make diagnosis and treatment more complicated and medical practice more interesting. Dietetic difficulties also played their part. It would be learnt, too, how very localized disease or strains of disease could be. The lecturer then proceeded to give an account of the most important diseases met with.]

Malaria

The most urgent essential for the newly arrived doctor in the Orient is to get a thorough understanding of the symptomatology and treatment of malaria. The principal fact to be grasped is that the parasite of "killing tropical malaria"—malignant tertian—does not sporulate in the blood circulating in the vessels at the surface of the body as do the other species of malaria parasites, but, instead, multiplies asexually in the capillaries of the vital organs in the depths of the body, producing glutinous agglomerations of pigmented masses of dividing protoplasm which act most effectively as multiple emboli, giving rise, in accordance with the locality of the sporulation, to symptoms which may simulate those of any acute disease, *febrile or afebrile*, of any vital organ. Thus, sudden coma, hemiplegia, precordial distress, "renal colic," appendicitis, and choleraic diarrhoea with severe collapse may all be attributable to sporulation of *Plasmodium falciparum*.

When, therefore, symptoms which may be ascribed to the action of that parasite present themselves, steps should be taken to examine a blood film and a thick drop; but even if parasites are not found, quinine or its equivalent should be given by an effective method if it is at all possible that malignant malaria is the cause of the symptoms. *Per contra*, it is also necessary to realize that the mere finding of malaria parasites in the blood does not complete the diagnosis if there are unusual symptoms, and one must constantly be on the watch for such conditions as meningococcal infections, which may occur along with malaria. A golden rule in connexion with cerebral or meningitic symptoms is, "When in doubt perform a lumbar or cisternal puncture."

I shall not enter into controversial matters with regard to treatment except to say that, although the intramuscular route for the administration of quinine is grossly abused in India, it still has its uses in fat persons, women, and many children. Some experienced observers prefer the intramuscular route to the intravenous even in acute emergencies, fearing an unduly swift liberation of malaria toxins; yet I have seen nothing but benefit result from small doses of quinine given intravenously, very slowly and highly diluted. If quinine—or emetine, which has also a necrosing effect—is to be given intramuscularly, special precautions should be taken in sterilizing the skin and syringe. I myself never delegate such preparation to a nurse or technician.

Amoebiasis

Next to malaria the chief source of pitfalls for the unwary or uninstructed is that protozoal mole the *Entamoeba histolytica*, which spends the greater part of its life burrowing and nesting in the depths of the bowel wall, far down in the submucous tissue, where it produces a profuse gelatinous degeneration. Like a mole under a lawn, it comes to the surface here and there, piling up little hillocks of material from the summits of which it peeps forth; it emerges when there is no danger, but remains resolutely below when there is the slightest hint of unfavourable conditions on the surface. It is a tissue parasite, not a surface invader like the dysentery bacillus, and from its deep and tortuous lair it is difficult to eradicate. This protozoon readily wanders off into venous channels, forming embolic deposits in other parts of the body, notably the liver, lung, and brain.

The proper treatment of intestinal amoebiasis is time-consuming and tedious, but it is well worth while, in primary infections, to make your patient submit to a full course of treatment, which entails absence from duty for six weeks—the first three weeks strictly in bed.

In permanent inhabitants of the Tropics much temporary patching up has to be done, but a high proportion of success can be attained in primary cases from the type of long treatment recommended by Manson-Bahr (1943), in which every therapeutic weapon is used in turn, by mouth or injection, over a period of several weeks, combined with retention enemata of yatren or allied preparations after a morning colon washout with weak sodium bicarbonate solution. A relatively liberal diet may be given throughout the treatment, and the results should be checked by sigmoidoscopy. The absence of amoebae and cysts in a specimen is valueless as an indication of cure if any treatment has been given during the past 14 days, even sodium bicarbonate in moderate doses by mouth three times a day being sufficient to cause the amoebae to skulk in their burrows.

Chronic intestinal amoebiasis is a much more common cause of minor bowel disturbances and an "out of sorts" feeling than is generally realized. It does not necessarily produce frank blood and mucus in the stools; but, as Hamilton Fairley pointed out years ago, a mild latent amoebic infection may so upset haemopoiesis as seriously to interfere with the treatment of anaemia of some other origin. Do not forget to examine with the microscope the stools of patients who are below par for no apparent reason.

Our surgically minded friends require special warning. Never operate for appendicitis in the Tropics without eliminating the possibility of intestinal amoebiasis; a faecal fistula so often results from such an operation. Similarly, cancer of the colon and rectum and hypertrophic tuberculous disease of the caecum may be so closely simulated by enormous single amoebic lesions that the possibility of such a protozoal cause must be kept in mind. We who live and practise in the Tropics, on the other hand, need constant reminders that blood and mucus from the rectum do not necessarily indicate dysentery.

Amoebic liver abscess should not occur in military personnel, as we have the means of aborting it in the stage of presuppurative amoebic hepatitis, but when it does occur open operation is rarely required nowadays—aspiration by Potain's aspirator or three-way syringe, after injection of emetine intramuscularly on three successive days, giving the necessary relief of tension, which must be followed by a vigorous and complete anti-amoeba campaign. A number of sufferers from amoebic abscess of the liver deny a history of dysentery, and it is quite common to be unable to demonstrate the parasite in the motions of sufferers from amoebic abscess.

Any lump in the abdomen, movable or immovable, with or without pyrexia, and even in the absence of leucocytosis, may be a hepatic abscess. All lesions at the base of the lung, especially on the right side, with or without a history of dysentery or hepatic involvement, may be amoebic in origin; the effect of emetine in such cases is striking.

Emetine is a valuable therapeutic weapon, but is a cardiac poison and cumulative nerve poison. During its administration the patient should rest in bed, and if he proceeds to a hill station, as so many military patients do after emetine treatment is over, very strict instructions must be given with regard to the dangers of over-exercise at high altitudes. Above all, the subject of amoebic hepatitis and amoebic abscess must eschew the use of concentrated alcohol: short drinks, gin-and-bitters, etc., have a demonstrably bad effect on such subjects.

* A summary of lectures delivered to E.C. officers of the R.A.M.C. and I.A.M.C. under the auspices of the Madras Branch of the B.M.A., 1942–4.

Very few women suffer from amoebic damage to the liver, and those who do are often found to be overfond of cocktails.

Bacillary Dysentery ; Simple Diarrhoea

Much has been written of late on the treatment of bacillary dysentery. A dose of castor-oil emulsion as soon as symptoms start, with a single 2-g. dose of a soluble sulphonamide, followed by regularly repeated doses of the relatively insoluble sulphaguanidine, gives satisfactory results. I myself continue to use collosol kaolin and belladonna along with the modern sulphonamide therapy. Serum therapy is reserved for highly toxic cases.

There are many causes of simple diarrhoea in India. The worst possible treatment is ordinary sedation by a derivative of opium. Finely divided kaolin forms one of our best remedies, and is generally included in the essential baggage of experienced touring officers. I am in hearty agreement with Hurst's suggestion that natural achlorhydrics should not be sent to the Tropics. It is too much to expect that in time of war every soldier should submit to a test meal before sailing, but the fact remains that achlorhydrics suffer from lack of the natural antiseptic barrier in the pyloric antrum, and that even those with low acid curves are particularly prone to intestinal complaints, especially in the hills.

Filariasis ; Lymphogranuloma Venereum ; Leishmaniasis

The new arrival usually has a very hazy notion of the effects of filarial infection. Gross manifestations of chronic filariasis are to be seen at every street corner, but elephantiasis occurs in a relatively small proportion of cases of infection. In many apparently healthy persons microfilariae are to be found in the blood at night, but in persons over 40 years of age an attack of filarial fever once or twice a year is not unusual. In a large hospital in which I have worked over 50% of the senior staff were absent at least once a year for a few days on account of filarial fever with lymphangitis. Even among healthy athletic young medical students here about 1 in 15 has a filarial hydrocele. Minor manifestations of filariasis should be no bar to recruitment, but the possibility of retro-abdominal lymphangitis and adenitis of filarial origin must be borne in mind in the case of personnel from filarial homes who are stricken with acute abdominal symptoms accompanied by high fever.

You ought to take the earliest opportunity of visiting a civil hospital and of seeing examples of lymphogranuloma venereum with its resultant ano-rectal syndrome and of that appalling condition, ulcerating granuloma of the pudendum with its spreading and corroding ulceration at the muco-cutaneous junctions.

Leishmaniasis, both dermal and visceral, is common in certain parts of India, though the two forms are never, so far as I know, together in the same place. The early diagnosis of the visceral variety (kala-azar) is by no means easy, and it is not unusual for several months to elapse before a diagnosis is made. Culture, on a special medium, of material obtained by sternal puncture is the best early method of certain diagnosis. The disease should be suspected in any case of apparently non-toxic fever with no physical signs after three weeks have elapsed without improvement. Leucopenia with a high relatively large mononuclear count often points the way to a diagnosis. The aldehyde and urea stibamine serum tests, which depend on gross alterations in the relative serum albumin and globulin ratios, are of value only after some months have elapsed since the onset of the initial fever.

Fevers

Typhoid fever you will meet everywhere. Every town and village acts as a reservoir of virulent strains of *B. typhosus*. Repeated inoculation is of great value as a preventive measure: it acts as a strengthening of the guard and not as an absolute defence against invasion by an overwhelming force. Do not, therefore, rule out the possibility of enteric fever because of recent inoculation. Remember that the earlier blood is taken for culture the more likely is the result to be positive ; and, despite recent advances in technique in performing the Widal agglutination test with pure antigenic material, it is well to remember that the actual sight of a tiger is better proof of its presence than the mere demonstration of pug marks in the jungle. Always prefer cultural to agglutination methods for the diagnosis of typhoid.

I have had occasion to draw attention to the great importance of the administration of large quantities of fluid to patients suffering from fever in hot climates (McRobert, 1941). This applies to typhoid patients particularly, and every effort must be made, by continuous rectal drip if necessary, to ensure replacement of water lost by evaporation. You will find that care paid to the supply of an adequate amount of drinking-water will cut down the rate of sickness from heat exhaustion, and the addition of small quantities of common salt adds to its beneficial effects.

Attention must also be drawn to the wide prevalence of tropical typhus, carried by mite, tick, and flea. Its existence on an important scale over the whole of the Tropics has only recently been recognized. The hetero-agglutination reaction associated with the names of Wilson, Weil, and Felix, which we used for the diagnosis of louse typhus in the last war, has been suitably modified by the use of new strains of *B. proteus* for the detection of tropical variants of typhus.

Sandfly fever and dengue fever—the latter with its almost intolerable pains and morbilliform rash—are often looked upon as mere minor curses of India, as no one ever dies of them ; but both are very exhausting and debilitating diseases, both give rise to states of severe depression—not infrequently with suicidal tendencies—and it is not unusual to find that the onset of some serious diseases such as pulmonary tuberculosis dates from an attack of dengue fever. Medical officers must take the greatest care to see that convalescents from these diseases are not returned to duty until they have fully recovered.

Helminthic Infection ; Taeniasis

Of the dangers of intestinal helminthic infection you have heard much. You are aware of the prevalence of hookworm disease and of the very satisfactory methods available for its treatment. You should note, however, that intestinal *Ascaris* infection may attain such a degree in some patients that symptoms of intestinal obstruction are produced.

You may not be aware of the grave danger to the carrier and his friends from infestation with *Taenia solium*. Somatic taeniasis is a terrible condition often leading to the mental hospital, and vigorous treatment after absolute starvation for three days is advisable in any intestinal infection with that worm. Avoid Indian pork and sausages like the very devil.

Conclusion

You who have come newly to India have much to learn ; each of you has a glorious field of exploration ahead. You have the satisfaction of knowing that to a much greater extent than in the West the health and well-being of your men and the efficiency of the battalions depend on the keenness and ability of the medical officers. Those of you who go home again will have acquired a priceless familiarity with laboratory methods in the diagnosis of disease. Doubtless some of you will decide to remain, for having

" 'eard the East a-callin' you won't never 'eed naught else."

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The Tata Memorial Hospital in Bombay for the treatment of cancer and allied diseases has issued its first triennial report, covering the years 1941–3. This hospital, which owes its genesis to the munificence of the late Sir Dorab Tata, of Bombay, is the last word in modern hospital construction. Originally visualized as a radium institute, its scope was enlarged to include treatment and facilities for research in cancer. The chief aim of the hospital, therefore, as its name implies, is the study of cancer along the channels of histopathological and biochemical investigation, and this can best be accomplished by the team work of specialists who are so actively and so constantly in contact with the disorder that the facts concerning it become more readily recognizable. The hospital was opened in February, 1941, and in this report, which covers the work done since then, there is evidence in the carefully compiled analyses of the first 5,000 cases that it will fulfil its purpose. While the plans for the hospital were maturing, Indian students and doctors were sent abroad for special training, and now hold appointments on the staff, which is manned entirely by Indians under the administrative superintendence of Col. Sir J. N. Duggan, I.M.S.

LONDON'S HOSPITAL PROBLEMS

A REPORT BY THE KING'S FUND

The promise of a further report, prepared jointly by King Edward's Hospital Fund and the Voluntary Hospitals Committee for London, on some post-war problems of the hospital services in London and the Home Counties was the chief item of news in the address by the chairman, Col. CLIFTON BROWN (Speaker of the House of Commons), at the annual meeting of the King's Fund last week. He said that the movement towards a comprehensive hospital service, already evident before the war, had taken on a new momentum with the White Paper issued by the Minister of Health and with the survey of hospital services in London and the Home Counties. The report would be primarily concerned with the part to be played by the voluntary hospitals, but it was hoped that in some respects it might prove not unhelpful to the L.C.C. and to the other local authorities upon whom fell such a heavy share of the hospital burden. Col. Clifton Brown referred to two reports recently issued by the Fund. The Committee on Hospital Diet, of which Sir Jack Drummond was chairman, had followed up its 1943 report by a more detailed and comprehensive one.* Over 60 hospitals, he said, had already taken advantage of the expert advisory service, and in many hospitals, both in London and elsewhere, the catering arrangements had been overhauled and brought into line with a more modern outlook on nutrition —so far, at least, as the prevailing shortage of dietitians, cooks, and other skilled staff permitted. The other report, on standards of staffing, gave guidance to hospitals on the number of nursing staff needed, and on the factors which had to be taken into account in arriving at this figure. It had been prepared by a subcommittee of the Distribution Committee under the chairmanship of Dr. Morley Fletcher. It sprang from a conviction that the shortage of nursing staff would never be overcome until the understaffing, which the subcommittee regards as affecting almost every hospital, had been remedied, and that a start could be made only by those hospitals which were in a position to attract enough recruits. More parents would encourage their daughters to become nurses were it not that the nurse's life was generally considered hard and exacting.

Dr. H. MORLEY FLETCHER, presenting the report of the Nursing Recruitment Committee, said that during 1944 it became increasingly evident that over the country as a whole the supply of recruits was gravely inadequate for the needs of the hospitals. The "wastage rate" of those who left without completing their training had risen steeply during the war and was now excessive. It was therefore more than ever important to supplement the recruitment work of the individual hospitals by centralized recruitment.

The report of the Emergency Bed Service Committee showed that in the first six months of last year 2,766 cases were dealt with, as against 1,874 for the corresponding months of 1943, but in June the flying-bomb attacks started and the abnormal conditions during the remaining months of the year resulted in a decrease of over 1,200 cases. There was a great variation in the extent to which doctors availed themselves of the service, and it was when there was a general shortage of beds that the service was busiest.

In moving the report of the Diet Committee, Sir HUGH LETT referred to the institution of refresher courses at the London Hospital for those concerned with hospital catering. There were a large number of applications for admission to these courses, but unfortunately the work was cut short by enemy action after two courses had been held. It was hoped, however, to resume them after the vacation.

The income of the Fund was well maintained during 1944. Legacies amounted to just over £50,000, and the receipt of £50,000 from Lord Nuffield's Trust for the Special Areas made it possible to transfer all but £1,800 of the receipts from legacies to the general funds. This year £75,000 has been received from the same source.

* Obtainable from George Barber and Son, Ltd., Furnival Street, London, E.C.4. (9d., post free.)

USE OF THE TITLE "NURSE"

After Oct. 15 it will be an offence to use the title "nurse" unless the person doing so is a State-registered nurse or an enrolled assistant nurse, and agencies supplying nurses must be licensed by local authorities and must supply only those who are State-registered nurses, enrolled assistant nurses, midwives, or members of other classes to be prescribed. The Minister of Health and the Secretary of State for Scotland have thus, by Orders issued last week, given practical effect to the intention of Parliament in the Nurses Acts of 1943 to restrict the use of the title "nurse" and to govern the licensing and control of agencies for nurses. There is to be an exception for children's nurses, who may use the term unless circumstances suggest that "they are something other than children's nurses," and other permitted usages are "trained nurse" by those on the general part of the nurses list, "maternity nurse" by midwives, and "student nurse" and "pupil assistant nurse" by those in training for State registration and for the Assistant Nurses' Roll. The object of these Orders is to protect the public against the use of the term "nurse" by persons having no nursing qualification and against the risk of being supplied without their knowledge with the services of unqualified persons at possibly high fees. Regulations also prescribe the form in which applications for licences for agencies are to be made, the fee to be paid—two guineas for a first application, one guinea for a renewal—and the form in which agencies must notify the nurse's qualification to the person employing her.

EVACUATION OF CASUALTIES BY AIR

On the invitation of the Director-General of Medical Services, Royal Air Force, a preview was given in the British Council theatre of a film illustrating the evacuation of casualties by air. The film, which lasts about half an hour, is intended primarily for the training of air-ambulance orderlies. The disposition in the aeroplane of stretcher cases and folding-chair cases is decided with a view to the attention which the more serious cases may require *en route* and to rapid exit on arrival. The film showed the extraordinary attention which is paid to the detail of stores and equipment—the provision for first aid, the penicillin drip, the oxygen equipment, the apparatus for giving morphine, as well as hot-water bottles, flasks for hot drinks, bed-pans, and so forth. Having landed and evacuated their casualties the orderlies must replace whatever has been taken out of store. The system of cards in triplicate whereby a record of each case is retained and transmitted was also shown. The film demonstrated the high level to which this transport of the wounded has been brought, and how comfortable, rapid, and safe it can be. "Speed without hurry" is the motto for the men and women orderlies employed. On one detail the film might give a wrong impression. It showed patients smoking cigarettes in the aircraft; this occurred during certain phases of the European campaign when the film was "shot," but regulations have since been made forbidding smoking in aircraft.

The report for 1945 of the British Association of Physical Medicine is signed by the president, Lord Horder. It records useful if not spectacular progress, chiefly in the field of education. Work in this important field comes under two headings. The first is to convince the medical profession as a whole of the value of physical methods in the treatment of a wide range of the morbid conditions arising in a modern civilized community. Under the second heading comes the task of seeing that there is stimulated the growth within the medical profession of a body of practitioners having a special knowledge of the application of physical medicine. The institution by the Royal Colleges last year of a Diploma in Physical Medicine was a good and progressive step towards this end. The Examination Board of the Royal Colleges, as a result of the opinions expressed by the representatives of the B.A.P.M., has now agreed that up to Dec. 31, 1945, candidates for the Diploma in Physical Medicine who produce evidence that they have been, for not less than five years, in charge of the physiotherapy department of a recognized undergraduate teaching hospital or of a recognized hospital, may, at the discretion of the Colleges, be exempted from Part 1 of the examination for the diploma. The three standing committees of the Council (scientific and technical, education and training, policy and public relations) have materially assisted by their investigations into a number of problems, and making recommendations thereon. The committees have considered the promotion of research work on physical medicine apparatus, relations with other scientific organizations, and the inclusion of physical medicine training in plans for postgraduate medical education.

Reports of Societies

INFECTIOUS DISEASES IN CHILDREN

The Fever Group of the Society of Medical Officers of Health arranged a postgraduate day for some eighty maternity and child welfare officers at the North-Eastern (L.C.C.) Fever Hospital on June 30. In the morning Dr. E. H. R. HARRIES and the senior medical staff demonstrated the hospital buildings, contrasting the old type of open ward and the subdivided isolation units of the new wards. Other departments visited were the reception unit for typhus fever patients, the operating theatre and *x*-ray block, a receiving block with six separate reception rooms at the periphery for the different infectious diseases, and a central duty room. Dr. Harries said he always thought that modern fever hospitals with adequate structure, equipment, and staff could become complete children's hospitals, such ward blocks as were necessary being reserved for the treatment of infectious diseases. During the morning, also, there was a laboratory demonstration, by Dr. R. CRUICKSHANK and a technical staff, of: (1) modern methods and selective culture media for the bacteriological diagnosis of intestinal infections, whooping-cough, and tuberculosis in childhood; (2) tests for measuring the penicillin and sulphonamide sensitivity of bacteria and for estimating the penicillin content of blood and urine of patients under treatment. Mrs. H. M. R. TOMLINSON showed the Warburg apparatus for estimating bacterial metabolism, and discussed the relation of toxic amines in the gut to the aetiology of infantile, particularly neonatal, diarrhoea.

Prophylaxis of Whooping-cough

In the afternoon Dr. R. CRUICKSHANK opened a discussion on whooping-cough. He said the best lines of attack on this major killing infection of childhood were: (*a*) improved diagnosis in the early stage, and (*b*) protection of susceptible children. Demonstration of lymphocytosis was an inferential diagnostic method applicable early in the disease, but absolute proof could be obtained only by recovering the organism. The "cough-plate" method of doing so had limitations, particularly in private practice and at clinics. The post-nasal swab was more easily taken and handled and gave comparable positive results. Penicillin was necessary in the culture medium to cut down the growth of other organisms. Release swabs for determining freedom from infection were not generally advisable, but could be used in selected cases, as when a child was returning to a highly susceptible community—e.g., a nursery school.

With regard to protection of susceptible children, it had been demonstrated by field trial that mass vaccination was a practical possibility. Standardization of whooping-cough antigens was needed, but there were technical difficulties, though antibody production could be used as a method of assay. Alum-precipitated vaccines probably gave the best results. No antigen afforded complete protection, but the attacks of whooping-cough in vaccinated children were usually mild. A high total dosage was required (100,000 million organisms), and best results were obtained by giving three injections at intervals of not less than three weeks. He had used pertussis antiserum (rabbit) with encouraging results to protect children exposed to whooping-cough in a nursery outbreak. Passive immunization of this type was preferable to vaccination of definite contacts, and he thought that pertussis antiserum might also be tried in the treatment of early cases of whooping-cough. Combined inoculations against whooping-cough and diphtheria were permissible, but diphtheria toxoid should not be mixed with *phenolized* pertussis vaccines, as the phenol damaged toxoid. However, the two antigens were not mutually inhibitory. He agreed that a boosting dose would have great value if given one to two years after primary vaccination.

Dr. N. D. BEGG thought the time would soon come to contemplate one campaign advocating combined protection of all children against whooping-cough and diphtheria at the age of 3 months. Whooping-cough vaccination could clearly not be deferred until the child was older without risking many lives, and there were disturbing indications that the child under 1 year was less safe from diphtheria than had been thought. Dr. E. H. R. HARRIES also considered that the shift in incidence of diphtheria had occurred not only to the older age groups but towards the first year of life. While agreeing on the need for early immunization, he said we must face the fact that young children were more difficult to immunize than older ones and that higher dosage, or more potent antigens, would be required.

Dysentery and Enteritis in Children

Dr. ROBERT SWYER, opening a discussion on the control of dysentery and enteritis in nurseries, said that the prevalent Sonne type of dysentery was often so mild as to escape notice, which was doubtless a cause of its widespread occurrence. Such complications as arose were usually in the upper respiratory tract, and included rhinitis, bronchitis, and otitis media. One child of 9 months had developed keratitis with a small ulcer and some iridocyclitis, and Sonne organisms were recovered from both faeces and conjunctival sac. A serious diagnostic error sometimes encountered was to mistake an intussusception for dysentery; the passage of blood and mucus without faecal matter per rectum should arouse suspicion of the graver condition. Bacteriological investigation might have to be repeated, but with the use of desoxycholate-citrate-agar medium positive results could be expected in over 90% of cases of Sonne dysentery. Serum agglutination might be helpful in convalescence, but a negative result did not rule out the diagnosis.

Patients treated symptomatically recovered rapidly as a rule, but a proportion continued to excrete Sonne organisms until the tenth to twelfth week of disease. Sulphapyridine had effected bacteriological clearance in an average of 5 days compared with 21 days in a control group. In a later investigation of the more insoluble sulphonamides, bacteriological clearance was achieved in 1.8 days with sulphabenzamide, 3.28 days with sulphamidobenzamide, and 2.4 days with succinyl-sulphathiazole. Bacteriological relapses occurred following all three preparations, but were much more frequent (34.6%) with succinyl-sulphathiazole. Dr. Swyer later demonstrated bacteriological relapses after the use of sulphapyridine. Early relapses probably indicated only intermittent excretion, but with later relapses the possibility of reinfection had to be considered.

Precautions against the spread of infection inside ward units had to be stringent. Apart from the usual barrier-nursing procedures, he favoured the use of destructible diapers, which were placed in a brown-paper bag in a closed bin and later burned in the destructor. All other soiled linen was put into antiseptic in a bin and later transferred to a large tank near the laundry. It was desirable also to separate sharply the nursing duties of feeding and changing children. The bacteriological criteria for determining freedom from infection were three consecutive negative stools or rectal swabs taken at two-day intervals. This had proved satisfactory in practice, and he felt that prolonged bacteriological testing was unjustifiable and would lead to great delay with its attendant risks of cross- and re-infection.

Preventing Epidemic Enteritis in Nurseries

Dr. HAMILTON HOGBEN, speaking of the administrative problems of dysentery and enteritis, particularly in wartime nurseries, which in his area accommodated some 730 young children, said that when these nurseries were set up in the early days of the war he had doubted the advisability of herding young children in unsuitable premises with makeshift equipment and staff inexperienced in the handling of healthy youngsters. Another drawback was that in wartime the children had to be cared for at nurseries for too many hours of the day, particularly during the winter months. He was amazed on looking back, however, to find how little justification there had been for his early fears of widespread infection. In his area there had been only six cases of dysentery and no serious outbreak of diarrhoea in all wartime day nurseries, but two residential nurseries in the country had not enjoyed the same freedom from infection. On the particular administrative problem of preventing epidemic enteritis in non-residential nurseries, he emphasized the need for uniform and efficient theoretical as well as practical training of the junior members of the staff. All the teaching of probationers had been centralized in two parallel courses held at the local technical college.

They had a good nucleus of peacetime nurseries and had insisted on prefabricated buildings when the time came to extend. Such premises, however temporary their construction, were at least designed for the purpose and were preferable to any "adapted" private houses or other buildings. Only in

specially designed premises could they get class-rooms of a size that would ensure sufficient air space for each child, cross-ventilation, and floors which could be easily cleaned. Special measures for control of enteritis included adequate washing arrangements for the children, with individual towels and plenty of space between each towel and face-cloth; metal receptacles for soiled napkins; and enough chamber-pots to allow time for cleansing them before use by the next child. Ventilation, temperature, and lighting of the children's lavatories were important to maintain dry floors and reasonable comfort so that toilet could be carried out leisurely and thoroughly. The entrance to the kitchen should be as far away as possible from the lavatories, and all staff should wash their hands as a routine before entering the kitchen to prepare meals. Preparation of infants' feeds should be carried out in a special milk room away from the kitchen and by one member of the staff only. A refrigerator was desirable, if not essential, in every nursery. Food should be delivered daily, and the keeping of food left over—such as gravies, minced meat, etc.—should be avoided. It was preferable to do laundry work on the premises for all children, but in any case adequate facilities were required for washing and sterilizing soiled napkins. Close daily contact between parents and a responsible member of the staff was important in revealing diarrhoea at home, etc. Prompt notification of abnormal stools and immediate isolation of a suspect should be followed by adequate bacteriological investigation. Given these conditions, the dangers of enteritis were not such as to make him fear nursery provision in peacetime for children over 2 years of age. But he was convinced for other reasons that infants should be housed in separate premises, where the crèche could be combined with cot accommodation for healthy children requiring special supervision in feeding difficulties.

Dr. A. T. W. POWELL said he had had 100 cases of Sonne dysentery in his day nurseries, including outbreaks in prefabricated premises. He did not favour closure as a means of limiting spread of infection, but thought that all procedures in the W.C. and washing accommodation needed close supervision. The problem of infection would have to be overcome, as we had to contemplate continuing some daytime nurseries.

The Services

The main building of the Royal Victoria Hospital, Netley, which for 18 months has been occupied by the U.S. Army Medical Services, was returned to the British Army medical authorities on July 19. Brig.-Gen. Charles B. Spruit formally handed the hospital back to Lieut.-Gen. Sir Alexander Hood, Director-General, A.M.S., who in reply said: "We of the British Army Medical Services would like our American friends to have a tangible token to remind them of their stay here, and I therefore present to the United States Medical Services the key of the hospital. I hope it will remind them not only of Netley, but also of the fact that our Services, which have so long been mutually supporting one another, are for all time united."

The *London Gazette* has announced the appointment as M.B.E. (Military Division) of Fl. Lieut. FRANK WILSON LAURIE, R.A.F.V.R. The citation reads as follows:

a One night in December, 1944, in bad weather, a Lancaster aircraft crashed nd caught fire outside an airfield boundary. Fl. Lieut. LAURIE, the station medical officer, went to the assistance of the injured crew. He arrived when the worst of the flames had subsided but there was some danger from the fire which was still burning. Working under appalling conditions among the wreckage, in rain and deep mud, he rendered first aid. The mud prevented ambulances approaching the crash and thus delayed the removal of the injured. Some of the crew undoubtedly owe their lives to this officer's prompt and skilful attention. After taking the injured to station sick quarters, Fl. Lieut. LAURIE, although very tired, tended them for a further 12 hours. In January, 1945, two Lancaster aircraft, both carrying long delay-action bombs, crashed at dawn within a few minutes of one another. Fl. Lieut. LAURIE assisted the crew from the first wrecked aircraft, which did not catch fire, rendering first aid as necessary and ignoring the potential danger of bombs exploding. He then turned his attention to the second aircraft. This had caught fire on hitting the ground and two explosions of bombs had already occurred. After seeing one survivor into an ambulance he went among the wreckage to search for other survivors. He was fully aware that there was a considerable danger that further bombs might explode while he was so engaged. Fl. Lieut. LAURIE has set a fine example of gallantry and devotion to duty and has done much to maintain the morale of air crews.

CASUALTIES IN THE MEDICAL SERVICES

Lost his life as a result of an air crash in East Africa.—Major John Andrew Farrell, R.A.M.C.

Wounded.—War Subs. Capts. S. F. M. Cressall and A. M. Gwynn, R.A.M.C.

Correspondence

Penicillin in Bacterial Endocarditis

SIR,—Since the announcement made in these columns on Feb. 17 (p. 232) of the formation of centres to investigate the therapeutic value of penicillin in bacterial endocarditis 81 patients have received one or more courses of treatment. The results indicate that penicillin can exert a remarkable influence on the course of this disease, but it is also clear that certain systems of dosage are not only ineffective but likely to be harmful.

The first series of patients was divided into three groups; all were given a total of 5 million units, but the duration of treatment was varied as shown in Table I.

TABLE I

	1 million Units a Day for 5 Days	0.5 million Units a Day for 10 Days	0.25 million Units a Day for 20 Days
No. of patients	19	15	12
Relapsed or died	95%	66%	33%
Average duration of "follow-up" of patients without relapse	123 days	110 days	83 days

These results show that even massive doses given for a comparatively short period are usually ineffective. Two other methods of treatment were therefore adopted. In one the daily dose varied from 0.1 to 0.5 million units according to the sensitivity of the infecting organism to penicillin, treatment being continued for 28 days; and in the second group all patients were given 0.5 million units a day for from 21 to 28 days. The results were as follows:

TABLE II

	Dose Regulated according to Sensitivity of Organism	0.5 million Units a Day for 21 to 28 Days
No. of patients	27	19
Relapsed or died	37%	26%
Average duration of "follow-up" of patients without relapse	72 days	75 days

These results do not indicate, as might be supposed, that the sensitivity of the infecting organism is of little significance; they only show that in some cases 0.5 million units a day gives better results than a smaller dose. It is hoped that the next series of patients to be investigated will indicate the significance of the sensitivity of the organism and the optimum daily dose.

The purpose of this letter is to encourage practitioners and consultants to refer patients as soon as a diagnosis is established to the centres listed below. Although the transfer of patients to these hospitals may be inconvenient, there are several reasons why it is desirable. Short courses of penicillin usually only result in harmful delay and may also increase the resistance of the organism to penicillin. These centres have become acquainted with the practical difficulties involved in the prolonged administration of penicillin. The results already obtained also show that conclusions drawn from the treatment of small numbers of patients suffering from this uncommon disease may be entirely fallacious: a co-ordinated effort is more likely to establish the effective dose and the value of such adjuvants as heparin.

The centres which have been established and the persons to whom patients should be referred are as follows:

Belfast.—The Secretary, Belfast Penicillin Clinical Trials Committee, Queen's University Institute of Pathology, Grosvenor Road, Belfast.

Birmingham.—Prof. K. D. Wilkinson, Queen Elizabeth Hospital, Edgbaston, Birmingham, 15.

Bristol.—Prof. C. Bruce Perry, Department of Medicine, Canynge Hall, Whatley Road, Bristol, 8.

Cardiff.—Prof. J. B. Duguid, The Welsh National School of Medicine, Cardiff.

Edinburgh.—Dr. A. R. Gilchrist, Royal Infirmary, Edinburgh.

Glasgow.—Prof. J. W. McNee, or Dr. W. R. Snodgrass, Western Infirmary, Glasgow.

Leeds.—Dr. J. R. H. Towers, 42, Park Square, Leeds, 1.
Liverpool.—Prof. Henry Cohen, Department of Medicine, The University, Liverpool, 3.
London.—(*a*) Sir Alexander Fleming, St. Mary's Hospital, London, W.2; (*b*) Resident Medical Officer, Middlesex Hospital, London, W.1.; (*c*) Prof. R. V. Christie, Hill End Hospital (St. Bartholomew's), St. Albans, Herts.
Manchester.—The Resident Medical Officer, Manchester Royal Infirmary, Manchester, 13.
Newcastle.—Prof. F. J. Nattrass, Royal Victoria Infirmary, Newcastle-upon-Tyne.
Sheffield.—Prof. E. J. Wayne, Royal Hospital, Sheffield, 1.

—I am, etc.,

RONALD V. CHRISTIE,
Secretary, Penicillin Clinical Trials Committee.

Masking Syphilis with Penicillin

SIR,—I was very interested in the letter by Brigadier T. E. Osmond (June 16, p. 853) on the effect of penicillin in delaying the appearance of a syphilitic sore. This probable effect had already been pointed out by Major F. L. Lydon, R.A.M.C., and myself in an article in the *Journal* of Jan. 27 last (p. 110). With the increasing use of penicillin in the treatment of gonorrhoea (both fresh and relapsed) more of these cases are coming to light, and our original plea for extended surveillance cannot be too strongly or too frequently emphasized. Major Lydon has recently informed me of one of his own cases with a delayed incubation period, and the following from my own records serves well to illustrate the point.

Pte. A. was admitted to a hospital in the Middle East on Nov. 2, 1944, with an infected irregular painful fraenal sore and associated right inguinal adenitis (clinical soft sore) and purulent urethral discharge showing many intracellular gonococci. The only exposure to infection was on Oct. 20, 1944. The fraenum was torn during coitus and treated with "a lotion and sulphonamide powder." Dark-ground examination of the sore was negative on the three days following admission. From Nov. 4 to Nov. 8, 28 g. of sulphathiazole was given. The sore was treated with eusol dressings. I saw this case on Nov. 14. Urethral smear still showed gonococci. The sore was healed and the adenitis subsided. On Nov. 16 penicillin was administered intramuscularly in doses of 20,000 units three-hourly to a total of 100,000 units. There was a rapid clinical cure of the gonorrhoea. On Dec. 19 the fraenal sore recurred in the same position, and dark-ground examination on the following day was positive to *Sp. pallida*. Blood Kahn was negative. Routine antisyphilitic treatment (arsenic and bismuth) was started on Dec. 20. No Herxheimer effect was noted. Treatment was completed by short-term penicillin therapy one week later. Blood Kahn was negative three months later.

The incubation period, then, was 60 days. Apart from the effect of penicillin in this case, it is important to note, too, that antiseptics were applied early to the original sore, thus encouraging rapid healing. It is reasonable to suppose that had antiseptics not been applied healing might have been delayed, allowing syphilis to be diagnosed before the institution of penicillin therapy (26 days after exposure).

Finally, I have recently noted a few cases of gonorrhoea treated with two or even three courses of 100,000 or 150,000 units of penicillin on account of relapse or fresh infection within a period of six weeks. It would appear, then, in view of what has already been said on the masking of syphilis, that such cases must be even more carefully assessed on completing their six-months period of surveillance.—I am, etc.,

W. R. SCOTT COWE,
Major, R.A.M.C.; Specialist in Venereology.

Saline, Sulphaguanidine, and the Amoeba

SIR,—We view with increasing alarm the frequency with which amoebiasis may remain undiagnosed in cases that have received treatment for presumed bacillary dysentery. In 1942, during the Burma retreat and its aftermath, many cases of "dysentery, clinical" were evacuated to Dinapore. These cases were mostly 10 to 14 days old and had been treated with salines. Repeated examination of the stools often failed to demonstrate amoebae, but routine sigmoidoscopy commonly revealed characteristic ulcers from which amoebae were sometimes recovered; in all cases the ulcers healed rapidly on emetine.

In 1943–4 in Assam it was usual to receive fresh cases, and the diagnosis of amoebiasis was so readily made by careful stool examination that instrumentation was rarely necessary. We are now stationed on Ramree Island. We draw our cases largely from the mainland and the 1942 position has recurred, the only difference being that patients have received sulphaguanidine in place of saline before admission. Once again we find that recourse to sigmoidoscopy has commonly to be made before the diagnosis of amoebiasis is established.

The comparative absence of flies during the monsoon, the high level of the subsoil water, and the consumption of tinned rations are all factors favouring amoebic rather than bacillary dysentery. The fact that symptoms may be controlled by sulphaguanidine treatment is to us a source of anxiety rather than satisfaction; we feel that, before we became aware of this danger, we returned to their units some men who undoubtedly had untreated amoebiasis. We believe that the majority of these cases represent not a double infection of bacillary and amoebic dysentery, but a pure amoebiasis in which the ulcers are secondarily infected with such organisms as the haemolytic streptococcus and Vincent's spirillum (Acton, H. W., and Knowles, R., *The Dysenteries of India*, Thacker Spink, Calcutta, 1928). This secondary infection is eliminated by sulphaguanidine, as is shown by a recent necropsy in which typical amoebic ulcers were perfectly clean, in striking contrast to the usual picture.

As the war moves further east we urge that this danger should be more widely appreciated, and that a serious attempt should be made wherever possible to recover amoebae from the stools before instituting empirical sulphaguanidine treatment. Where sulphaguanidine has perforce to be used, it must be realized that the apparent control of symptoms by no means excludes the presence of amoebiasis.—We are, etc.,

G. A. RANSOME,
Lieut.-Col., I.A.M.C.
J. F. STOKES,
Lieut.-Col., R.A.M.C.

Ramree Island.

Excision of Patella

SIR,—The letter from Mr. H. A. T. Fairbank on excision of the patella (July 14, p. 62) is most timely, and many will agree with his warning concerning the readiness with which some surgeons take the easy way of removing the patella without giving a fair trial to more conservative methods. I am among those who consider that the theory that this bone can be removed with impunity and plays no indispensable part in the functioning of the knee-joint has been accepted too readily. Without long-term statistical evidence, that is so necessary and yet lacking, the wisdom of such a drastic step as removal cannot be definitely established.

If the human patella serves no useful purpose, common sense, quite apart from morphological argument, surely indicates that such a large and well-defined structure would have disappeared or would have been represented by some mere vestigial element millions of years ago. The patella is often dismissed in airy fashion as a mere sesamoid bone, but even the humblest sesamoid has a function to perform; hence its persistence through the ages. Could any structure look less like a useless vestigial remnant than the human patella, and can there be any doubt that it plays an important part in the complicated mechanism of the knee-joint?

In the experimental work that preceded my Hunterian lectures at the Royal College of Surgeons of England on osteoarthritis and loose bodies in joints, I was able to show that lack of cartilaginous apposition between the patella and trochlear surface of the femur actually caused disappearance of the articular cartilage over the trochlear surface. I append short notes of two experiments:

Expt. 13.—The knee of a rabbit was fully flexed and immobilized by staples driven on either side into the lower end of the femur and the upper end of the tibia, the joint being unopened. The animal was killed 6 weeks later and it was found that the articular cartilage had disappeared from the trochlear surface of the femur. Owing to full flexion of the joint, its cartilaginous surface had not been in contact with the cartilaginous surface of the patella.

Expt. 11.—The patella of a rabbit was completely dislocated to the outer side of the joint. After death 10 weeks later, the articular cartilage of the trochlear surface of the femur had almost completely disappeared, evidently through lack of cartilaginous apposition. The articular cartilage elsewhere was normal, and on the outer

side of the femoral condyle, where the patella had articulated, a new articular surface had developed consisting of smooth connective tissue undergoing, in places, cartilaginous transformation.

These experiments were performed more than 20 years ago and duly published. They have evidently escaped Mr. Fairbank's notice, although he mentions recent experimental work on somewhat similar lines by Bruce and Walmsley (1942) and Colin (1944) and published in America. There is an obvious fallacy in applying experiments on animals to human beings, but the findings are certainly suggestive.

Redfern, many years ago, found also that the articular cartilage underwent degenerative changes after experimental amputations through joints. Specimens formerly in the R.C.S. Museum ((pre-war Nos. 440.1 and 442.2: I have been unable to check if these survived the holocaust due to enemy action) show the lower ends of the femora from cases of amputation through the knee-joint. In both cases the articular cartilage is very thin and has in places degenerated. One sees examples of the same kind in old unreduced dislocations, both congenital and acquired, and in various deformities. All these facts show that when normal cartilaginous apposition ceases, degeneration of the articular cartilage occurs which is indistinguishable from that seen in the early stages of osteo-arthritis, and may be followed by the complete picture.

After these animadversions concerning removal of the patella, I hasten to observe that the operation is, in my experience, occasionally of value. In addition to the badly comminuted fracture of the patella, where the normal smooth articular surface cannot be reconstituted, it is occasionally of value in cases of osteo-arthritis of the knee, where the disease is concentrated in the patello-trochlear area and where pain due to friction is intolerable. It is an alternative to arthrodesis or excision which may preserve a useful range of movement. I have been pleased also with the results of excision of the patella in long-standing cases of recurrent dislocation, when painful and frequent attacks of dislocation occur in spite of previous plastic operations, and which are uncontrollable by an instrument.

It is worthy of observation that the aesthetic effect of excision of the patella is far from satisfactory: in fact, the knee looks like "nothing on earth," particularly on flexion. This is a point of no small importance to the young of both sexes and even to the not so young.—I am, etc.,

London, W.1. A. G. TIMBRELL FISHER.

March Fracture

SIR,—Stamping is still going on in the Army in spite of any order in the Drill Book. Drill sergeants are teaching recruits to stamp at their "turns," and men are being invalided in consequence of the injury it causes to their feet. I wonder whether Dr. Ian D. Kitchin's patients (July 14, p. 64) have been subjected to this ugly, ridiculous ritual. What are the medical officers doing about it?—I am, etc.,

Stanmore. G. LENTHAL CHEATLE.

Effort Syndrome in West African Soldiers

SIR,—I was interested in Major Goddard's article on effort syndrome in the West African soldier (June 30, p. 908), and without disputing his conclusion that "the influence of European civilization is an important factor in determining the incidence of effort syndrome in the West African," I do not agree that the facts recorded in his article lend any colour to this belief. It is clear from the article that the hospital where the cases were recorded did not serve even approximately a representative sample of Gold Coast soldiers of the R.W.A.F.F. The proportions of Christians in his 12 cases and in the 40 cases in the surgical ward are 100% and 50% respectively. These proportions would be strong evidence that effort syndrome occurs among Christians relatively more frequently than diseases requiring surgical treatment, if there were not reason to believe that the two groups are differently selected.

I have no figures readily available, but it may be taken that Northern Territory, Ashanti, and Colony soldiers will, relatively to each other, consist preponderantly of Mohammedans, pagans, and Christians. Without knowing the actual proportions of Christians and non-Christians, it is possible also to conclude by similar arguments from the figures quoted of the relative numbers enlisted in the three parts that Christians are more liable to disease requiring surgical treatment. The true answer is, of course, that Major Goddard's cases were taken from what is anything but a random sample, and conclusions drawn from study of the relative frequencies are useless.

I suggest that what has happened is this. The hospital in question was probably at Accra, Kumasi, or perhaps Takoradi (Accra and Kumasi are marked on his map; Takoradi is on the coast roughly south of Kumasi). These three stations have adequate communications. For the period in question the Gold Coast was surrounded by Vichy French territories, and most units with primarily combatant duties were presumably in distant stations like Tamale (also marked on his map). Such units would be predominantly pagan and Mohammedan. Even if the M.O. suspected a psychiatric disorder, the soldier would be much less likely to be sent on the long journey down to the south. The argument is supported by the fact that, though 53% of serving soldiers came from the N.T., 5 out of every 40 patients in the surgical ward were Mohammedans. Very likely, however, effort syndrome would not even be diagnosed. Speaking from experience as an infantry officer in the R.W.A.F.F., I can say that if one encouraged every man who complained that "my chest do humbug me" to go sick, one would seldom have a reasonable parade strength at all. Suppose, however, that effort syndrome cases reach a sympathetic R.M.O., he then has the same difficulty as Major Goddard, who "found the language difficulty a great hindrance in getting *en rapport* with these cases," and failure to diagnose the condition is more than possible. The argument is equally valid when applied to the Christian and non-Christan elements among the units near to the hospital.

The article shows exactly what one might expect: that effort syndrome cases reach a base hospital more easily when the sufferer is educated. What figures of this sort can never show is whether the disease is more frequent among educated than among uneducated Africans.—I am, etc.,

M. D. W. ELPHINSTONE,
Major, late R.W.A.F.F.

Re-employment of the Consumptive

SIR,—Those of us who, as tuberculosis officers, have to advise the consumptive about his employment, and who frequently have to issue certificates to help the patient to obtain work, are well aware of the difficulties with which he is faced and the anxiety that these difficulties cause. It is therefore most gratifying that the patient disabled by tuberculosis comes within the scope of the new Disablement and Rehabilitation Act.

There are, however, certain aspects of tuberculosis in regard to employment which are not widely enough recognized. First, the fresh-air fallacy should be exposed. It is extraordinary how widespread is the belief that fresh air is essential to the consumptive. No doubt this misconception is fostered by the simple observation that in sanatoria the gospel of fresh air is correctly and extensively both preached and practised. But in many cases both patient and public mistake this hygienic measure for a valuable therapeutic device, and so it is not uncommon to find that a patient seeks outdoor work, and perhaps thinks of throwing up a useful sedentary occupation, not realizing that it is the latter rather than the former which offers him the better opportunity to keep up that all-important measure—the regular rest-hour. Furthermore, the exposure to inclement weather and getting wet through may have unpleasant consequences if his home is not so well equipped for drying clothes as was his sanatorium.

I would suggest that a second fallacy is the dread of infection. At the present time the aetiology of consumption is not properly understood. Why is it that some persons become consumptives while others overcome a primary infection and thereafter experience no further trouble? There are advocates of the theory of "endogenous exacerbation" and there are advocates of the theory of "exogenous reinfection," but there is no agreement among the experts that the consumptive with a positive sputum can transmit the disease of consumption as distinct from transmitting tuberculosis. Surely, then, if there is no proof of this fact, but rather considerable debate about

it, the public should not be encouraged to take the view that the sputum-positive patient is a menace to the health of his contacts at work. Especially is this the case if the patient has been to a sanatorium and has learnt the principles of hygiene there taught.

The type of work for which a consumptive is suitable depends on many factors, but these two especially: first, the nature of his previous job, and, secondly, whether his disease is quiescent or whether he is a "good chronic." At the one extreme, the man with a sedentary occupation and good hours and with quiescent disease should be encouraged and assisted to remain in his previous employment, and obstacles to this end overcome. At the other extreme, the man with active disease and a previously strenuous job is *par excellence* the patient requiring rehabilitation. It is grossly unfair to an individual that because of a positive sputum he should be debarred from earning a living if he so desires. It seems to me that for such cases rehabilitation should often be directed toward those crafts which the patient may have had the opportunity to learn by way of diversional therapy in a sanatorium, especially leather work, toy-making, fine embroidery, draughtsmanship, etc.

To the consumptive re-employment in society is a most vital problem. When the Disabled Persons (Employment) Act is functioning more extensively we must see to it that suitable jobs are kept for the tuberculous, whose problem is different from a surgical disablement, and a positive sputum must not become a sentence of permanent unemployment or ostracism to an outdoor, inclement, livelihood.—I am, etc.,

Reading. W. H. TATTERSALL.

Day Nurseries

SIR,—As circumstances prevented me from supporting the Archbishop of Westminster's criticisms at the present conference on maternity and child welfare may I ask the hospitality of your columns to do so?

Day nurseries mean that mothers with young children are going out to work for a living. What are the effects of this practice on the individuals most concerned?

1. *The Father.*—Father is generally forgotten or ignored in discussing this problem, but he is not unimportant. Part of his job (of bread-winning) is taken from him, and part of his own proper responsibility is also taken from him. In my experience he tends, lacking the stimulus of this responsibility, to relapse into illness or unemployment, or at best to stay content in the poor job with inadequate pay (and, incidentally, to encourage the bad employer to maintain low rates of wages). Moreover, a decent man does not like to see his wife doing what he knows he ought to be managing single-handed, and the consequent irritation, coupled with disgruntlement at having to get some of his own meals, does not tend to improve the family atmosphere.

2. *The Mother.*—One of the commonest problems in industrial general practice is the woman who comes in with a panel card and a wedding ring. She is not doing one job: she is doing two. She gets up early, does as much as she can in the house, rushes off to the day nursery, and then on to work. After she has done her "day's work" she comes back (via the day nursery) and starts again on her household duties. No wonder she is tired and irritable and harassed by the threatening alternatives—"more money but more work," or "less work but less money." Moreover, such a woman cannot obviously have any more children if she is to remain at work. In these days of dangerously low birth rates is this an aspect of the problem which we can afford to neglect?

3. *The Child.*—What the young child needs above all else is mother's love and protection. But what does he feel? What would he say if he could express himself? "Mummy does not love me as she used to; she goes away all day and leaves me with those people in the nursery." And then, deprived of her society all day, what does he feel when he is taken home in the evening and finds her cross and irritable and too busy with the housework to have time to spare for him?

Sir, the day nursery may be one of the inevitable necessities of total war, but in peace every one of them is a blot on our civilization.—I am, etc.,

Wandsworth. F. GRAY.

Hydatid Disease of the Lung

SIR,—In the *Journal* of March 17 (p. 375) there appears an annotation, under the heading "Cave Canem," on a paper by Barrett and Thomas dealing with hydatid disease of the lung. Many of the points enumerated are not in accordance with my experience of hydatid extending over nearly forty years. Erosion of the ribs does not occur, but in large hydatids there is an associated bulging of the chest wall. Multiple hydatids of the lung are rare. The outline of hydatid is always sharply cut unless there has been a leakage or unless there is an associated pneumonitis or pleurisy. The crescent of air is only seen in leaking hydatid. I doubt whether hydatids disappear spontaneously; if they disappear it is because of rupture into a bronchus.

In regard to operation, the one of choice is "marsupialization"—i.e., the cyst is turned out, and if the hydatid is a large one it may be necessary to insert a drainage tube; otherwise the wound is closed.—I am, etc.,

Sydney. J. G. EDWARDS.

Human Creeping Myiasis

SIR,—I have read with interest the very full account by Dr. R. G. Turner (July 7, p 11) of a case of human creeping myiasis, and would like to record an experience of mine three years ago.

A local doctor reported to me the case of a boy aged 16, who had been complaining of pains in the shoulders and in the muscles of the upper arms and in the intercostal muscles. He stated that a lump came on the left shoulder which he squeezed, and expressed "matter." The boy was a farmer's son from a remote mountainous area where bacon is a staple food, and the pigs eaten are often upwards of 2 years old and for a large portion of their lives are not sty-fed but run loose. In the circumstances trichinosis was suspected. This had not been uncommon in the district many years ago, though it has disappeared for about a generation. Together with Mr. J. O'Brien, veterinary surgeon, I investigated the matter. Practically all of the pig in question had been eaten and *Trichinella spiralis* could not be found in the small portion remaining. The boy was in good health but complained of wandering pains in the shoulders, chest, and arms. His temperature was normal and physical examination was negative. The boy and the premises were kept under observation, and a little later he reported to us with another swelling. This was on the left upper arm. It was small, red, and slightly tender, and was obviously about to discharge. On squeezing, a white maggot was expressed. This was immediately recognized by Mr. O'Brien as the larva of the warble-fly. About two weeks later a further larva was expressed, this time over the right scapula. This was the last of the larvae. During all this period the boy did not complain of illness other than the pains referred to.

—I am, etc.,

Castlebar, Co. Mayo. D. F. MCCARTHY.

The Training of the General Practitioner

SIR,—I endorse most of Dr. E. K. Mackenzie's remarks (*Journal*, June 9, p. 823) on obstetric specialism, but do not his observations apply with equal cogency to every specialism in medicine—namely, the need for wider experience and greater sense of perspective on the part of the young graduate before he is permitted to specialize? While a diploma may not be superfluous to the possessor of the M.R.C.P. or the F.R.C.S., surely it is no substitute for either. I need not stress the point further.

There is need, however, for a new diploma—one in general practice, a D.G.P. Whether the medical services of this country are to be administered by the profession or by the State, the standard of medical practice will depend on the competence of the general practitioner more than on anyone else. If with our teaching schools first things come first, their principal aim should be to turn out qualified competent practitioners; but the medical schools are turning out embryo specialists, of whom a few indeed become specialists while the majority become general practitioners.

It can scarcely be pretended that the young graduate has received the right kind of training for general practice, although by law he is permitted to engage in independent practice as soon as he has registered his qualification. To obviate this a

diploma, after a searching examination not earlier than the end of the third year following graduation, would appear to be highly desirable. General practice, where it is efficient and sufficient, is of vastly greater value to the public than any specialism. Where the standard of practice is low the public suffers to an incalculable degree. To ensure the high standard that the public deserves and needs general practice should be regarded as the most important specialty in medicine, and the future G.P. should possess a diploma guaranteeing proficiency before he is permitted to embark on independent practice.

For the first two years after graduation the training of the young doctor, whether he aims at being a consultant, specialist, or G.P., should be on parallel lines—hospital appointments. Thereafter the aspirant to general practice should go as an assistant into general practice, and he should be permitted to take the diploma not earlier than the end of the third year after graduation. As soon as he finds it expedient (afterwards) he could embark on independent practice or become a partner. The examination should be on the lines of the M.R.C.P., the special section of which would be replaced by a section on general practice, including social aspects of medicine and citizenship.

There is no walk of life that gives more scope for personality and individuality than general practice, but until its prestige is sufficiently enhanced to attract some of the best brains (and it affords scope for the very best) the man in the street is not going to enjoy a better medical service. It is generally admitted that much of the training of the undergraduate would be better done by a teacher with a "general practice" outlook than by the pure specialist. With correct background of training an interchange of personnel between general practice and the teaching centres would come about naturally and smoothly to the advantage of both. With adequate hospital accommodation for the sick there should be enough house appointments for the proper training of G.P.s, specialists, and consultants.—I am, etc.,

Fraserburgh. J. MACLEOD.

*** A diploma in general practice was suggested by Dr. Frank Gray in an article on the general practitioner of the future, published in the *Supplement* of May 27, 1944, p. 121.—ED., *B.M.J.*

Weight Reduction by Dieting

SIR,—The following observations conducted on myself may be of interest. I have often been asked by patients to put them on a reducing diet, and have consequently compiled a detailed regimen, of adequate calorie value, but largely excluding those substances with a high carbohydrate content. Provided there was strict observance by the patient of the rules laid down, the results were eminently satisfactory, a steady loss of 1 to 2 lb. a week being maintained over a long period.

Recently certain causes prompted me to consider adopting my own regimen for myself. They were: shortage of clothing coupons, excessive strain on various supporting buttons, notably of the trousers, and a hopeless prospect of ever insinuating my person into my pre-war civilian clothes. I accordingly started dieting, but being of an impatient nature I exercised a more strict control, and hence lost weight at an increased pace. The diet as laid down included one fast day a week; and on this day, as I felt so very well and suffered no ill effects, I decided to extend it, which I have done indefinitely, with what seem to me to be quite remarkable results.

For the last 28 days I have been fasting—details of which are as follows and strictly accurate:

(i) I have eaten no food of any sort whatsoever.
(ii) I have taken copious non-alcoholic fluids (some sweetened).
(iii) I have maintained an adequate daily vitamin dosage of A, B_1, B_2, C, and D (in tablet form).
(iv) I have taken no alcohol.
(v) I have taken an alkali mixture three times a day.

On the above-mentioned diet I have maintained very full and busy working days, including office work, long drives in a car, aeroplane trips, and in the light evenings plenty of exercise, including several sets of tennis, long walks, etc. During this period of 28 days I have lost 30 lb. in weight, felt extremely fit, slept well, had no headaches, lassitude, or feeling of weakness—and in fact never felt better in my life. My bowels have not been opened for the last 15 days. The mental strain on occasions was admittedly considerable, but my eye is bright, my skin clear, and my brain functions normally. Furthermore, as my clothes are now very comfortable, and I can see my genitalia from the upright position, I consider the experiment to be successfully concluded.

I was always taught as a student that there were several prerequisites of safe dieting, which included complete rest in bed, slow reduction over a long period, no complete starvation. While I would not consider putting a patient on so rigid a diet, I should be most interested to hear the views of others in this matter. Doubtless I shall be derided and criticized, but I shall at least have the satisfaction of being able to put my clothes on direct from the moth balls. For sartorial and gastronomic reasons I refrain from publication of my name and sign myself

"APOLLONIAN."

Alien Doctors

SIR,—I was delighted to see Capt. J. Joseph's letter (July 14, p. 66), though somewhat guilty that I had not written earlier myself to challenge the recent evidences of a familiar reaction.

Of course, among the refugee doctors there are some unethical black sheep, but these are not unknown in our own British professional group. Since 1933 I have come across most of the refugees in my own field of medicine, and I have a high opinion of their skill, integrity, and professional spirit. In the early days of the war I was "plagued" by their anxiety to work in the national services. The Army had limitations on their employment; the E.M.S. found it difficult to use them, and, frustrated as our warm allies in this war, they had to turn to other forms of valuable work for the health of the country. An increasing number have recently been at work in the Services, where they have made a distinguished contribution.

The opinion has been expressed that the new health services should not be operated until there are enough doctors to make it possible. In psychiatry, at any rate, our shortage of well-trained men will be great, and, in my opinion, we urgently need the continued help of such refugee specialists as can be retained in this country.

Innuendo and undocumented criticism are poor weapons for a scientific profession. The B.M.A. would do an invaluable service by appointing a small impartial committee to receive and sift whatever evidence is available on this topic from all sources, so that advice on future policy may be given to the Home Office.—I am, etc.,

London, W.1. J. R. REES.

SIR,—The letter of Majors L. T. Clarke and R. S. MacHardy (July 7, p. 30) cannot remain unanswered by refugee doctors. It is a misleading overstatement to speak of an inundation of the fields of British medical practice by alien doctors. So far as I know, there are 40-odd Austrian and 50-odd Czechoslovak "quota doctors" who have obtained British qualifications, are on the permanent *Medical Register*, and were granted the privilege of establishing themselves in medical practice. Apart from these there are roughly 300 doctors from Austria, Czechoslovakia, and Germany who, although mainly highly skilled medical men of middle age, are mostly engaged in assistantships and hospital work in junior capacities—and with junior salaries—and who are only on the temporary *Register* in order to comply with the law. A trifling handful of about 5 or 6 have obtained British qualifications and are duly registered but are not included in the quota. Inundation, indeed!

The alien doctors know, and are sorry for, the sacrifices of their British colleagues caused by their absence from their practices for nearly six years, but I think it would not be unfair to mention that so many practices have been saved and maintained by the efforts of assistants and locumtenents. Our sacrifice of pride and dignity which we suffered when we had to leave our former homelands is insignificant compared with the sacrifice of life and health by those who failed to get a sanctuary in this country. Do your correspondents know how few of us succeeded in joining the Allied Forces, and how many have applied in vain for appointments with U.N.R.R.A. and the Military Government? Certainly many refugee doctors

would be glad to replace British doctors in liberated Europe, having been entrusted with the health and life of British people for so many years. But as to the privilege of "practising among one's own folk," I know at least two alien doctors who have tasted life in concentration camps and abhor the idea of practising among people who are their own folk no longer.—I am, etc.,

Penarth. MARCELL GANG.

*** This correspondence is now closed.—ED., *B.M.J.*

Newspaper Publicity

SIR,—A paper by me entitled "Return of Virility after Prefrontal Leucotomy" appeared in the *Lancet* on Sept. 9, 1944. The sole reason for publication was to draw attention to an unusual physical result of prefrontal leucotomy and discuss possible physiological implications. This paper has evidently been the subject of an article which appeared in the *Sunday Dispatch*, July 15, 1945, entitled "The Story of a Scientific Miracle. A Man had Worry Removed from his Brain." The article was so written that one would be justified in inferring that it was the result of a personal interview given by me. It is stated that I was one of the first two doctors in this country to put prefrontal leucotomy into practice. In point of fact I can claim no credit at all in its introduction into this country. Coupled with my name are those of the late Mr. Wilfred Willway and Dr. Max Reiss. There is also a quotation from the article which is textually incorrect, and reads as if it were a verbatim statement of mine. The newspaper article has been published without any reference to the source of the material, nor is there anything to suggest that it is based on a *Lancet* publication.

I desire to state that the newspaper article has been published without my knowledge or consent. The *Sunday Dispatch* is a paper that I see only occasionally, and I have never heard before of the author of the article, who signs himself Edward H. Spire.—I am, etc.,

Bristol Mental Hospital. R. E. HEMPHILL, M.D., D.P.M.

Medico-Legal

THE YOUNG OFFENDER

The committee of two which inquired into the provision and administration of remand homes by the London County Council touched on a problem far wider than the scope of its actual reference.[1] Mr. G. Russell Vick, K.C., and Miss Myra Curtis were appointed to clear up the controversy which was started when Mr. John Watson, chairman of the Tower Bridge Juvenile Court, and Mr. Henriques, chairman of the Toynbee Hall Juvenile Court, published severe criticisms of the council's conduct of remand homes for girls. The commissioners found that in the particular case of a child of seven which had focused attention on the home, Mr. Watson's statement that she was wrongly treated was inexact and misleading; that the child was properly received into the home at Marlesford Lodge and properly cared for while there. On the other hand, there was evidence of overcrowding in the council's remand homes in the past, partly due to war conditions. Marlesford Lodge, they found, needed further adaptation and improvement and its administration had lacked interest and enterprise. It was very much understaffed and needed, in the commissioner's opinion, better qualified and better paid workers. They found that thirty or forty girls passed their recreation time sitting in one room with nothing whatever to do, listless and conscious of frittering away their time. At Stamford House, a boys' remand home, the boys were by contrast actively and contentedly employed at all kinds of handwork. The committee thought that the L.C.C.'s resources are adequate to provide books and materials for needlework and handicraft, and also to avoid the shortage of clothing of which complaint was made.

The chief criticisms of the magistrates were, however, directed against what they thought to be faulty segregation of what may be called sexually delinquent from sexually innocent children. The statutory rules governing remand homes lay down only that care shall be taken to keep in separation any boy or girl who may be likely to exercise a bad influence over others. Mr. Watson strongly held the view that "innocent" girls should be kept out of the remand homes altogether and that girls sent there should be classified into two groups: those sent for misbehaviour and for sexual misbehaviour respectively. Committed girls should, he held, be kept apart from remanded girls, and the sexually immoral separated from the sexually moral. Mr. Henriques wished to divide girls over fourteen into three groups, to be kept entirely separate: ordinary delinquents, moral delinquents, and those awaiting a school. On the other hand, the Home Office view is that local authorities should apply the separation rule as each thinks best and that classification according to sexual experience is undesirable even if it is practicable. The commissioners thought the magistrates were wrong in charging the L.C.C. with grave dereliction of duty because it had not achieved a standard of segregation which had not been authoritatively laid down or even generally agreed. They did not regard the Marlesford Lodge arrangements as the scandal which the Press treatment of the controversy had suggested they were. On the other hand, they found that the L.C.C. had not worked out a definite segregation policy and would be well advised to do so. The committee's own view was that certain classes of children should be either removed from the remand home or housed in a separate part of it—viz., children under eight, girls suffering from venereal disease (who are already separated), children and young persons committed to approved schools, and those under punitive detention. They would house boys and girls over eight in separate homes, and keep the age group 8–12 apart from other children for most purposes. The remainder, they thought, need not be classified on any definite formula, but the superintendent, assisted by skilled supervisors, ought to have facilities for separating them. They also recommended that children should be fully occupied, that the Home Office in consultation with local authorities should review the pay, recruitment, and training of staffs, and that machinery should be established by the Home Office for easy and frequent consultation between the Home Office, the L.C.C., magistrates, probation officers, and superintendents.

The learned correspondent who dealt with the problem in a long article in the *Times* of March 15 doubted, however, whether such machinery would secure adequate co-ordination. Throughout the whole penal system, except for probation, judges and magistrates have no share in the management of corrective institutions. He thinks that a choice may have to be made between handing over remand homes and kindred institutions to a committee of magistrates, and setting up a special authority with the duty of prescribing and supervising treatment of defined classes of persons; particularly young persons, whom the courts would otherwise sentence to prison or Borstal. Before instituting such drastic reforms, the co-ordination of the judicial and executive authorities ought doubtless to be given a fair trial. What, however, seems to be most needed is a far more general sense that the problem of dealing creatively with young delinquents is really urgent and important, and that these children are not merely a nuisance but the raw material of our future as a nation.

[1] H.M. Stationery Office, 1945. Cmd. 6594. (6d.)

With the 86th report of the Royal Eastern Counties' Institution for the Mentally Defective at Colchester is enclosed a printed tribute to Dr. F. Douglas Turner, C.B.E. Near the end of last year Dr. Turner approached the board saying that with advancing years he found that the burden of running this vast institution was getting beyond his powers and he felt he must retire. As he had wished to do so before the war but was persuaded to stay on, the request could not be refused, and Dr. Turner retired at the end of February, 1945, to be succeeded by Dr. E. Randal Hull. "To many of us Dr. Turner had been the R.E.C.I., and we cannot think of it without his wise, all-pervading, kindly influence. He came to the Institution in 1905 as medical officer, having started in general practice at Huddersfield, which he gave up after five years owing to eye trouble. On the death of his father, Mr. J. J. C. Turner, in 1914, he succeeded him as medical superintendent. At that time the number of beds in the Institution was 250; to-day the number of beds is 2,150. It has been under his direct supervision that this enormous expansion has occurred." The eulogy from which this brief passage is quoted has an accompanying portrait.

Obituary

SIR W. GIRLING BALL, F.R.C.S.

Surgeon to St Bartholomew's Hospital

It had been known to his friends for some months that Sir Girling Ball's health was failing; he had had to give up the chairmanship of the Services Committee of the Central Medical War Committee, though remaining, at least nominally, a member. But he was not far advanced in the sixties, and until his breakdown he conveyed such an impression of robustness, both of mind and body, that many more years might have been predicted for him. His death on July 16 is a great loss to the branch of surgery he had made his own and to medical education.

With St. Bartholomew's Hospital, and the place it occupied in the City of London, William Girling Ball's whole career was bound up. He was not by birth a Londoner, but the home of his childhood was only ten miles away, at Barnet, in Hertfordshire, and it was to the City he went to school. As a boy of 13 he entered Merchant Taylors', then located just by the City wall, west of Aldersgate, and it was an extraordinary happiness to him, forty years later, owing to the removal of the school out into Middlesex, to be able to acquire for St. Bartholomew's Hospital College the almost sacred ground on which Merchant Taylors' had stood from the time when Charterhouse School left for Godalming.

Girling Ball remained at Merchant Taylors' until 1900, when he entered St. Bartholomew's, qualifying in 1905. He served as house-surgeon under Sir Anthony Bowlby. For four years, from 1907 to 1911, he was demonstrator of pathology at Bart's, and from 1911 to 1913 clinical assistant at St. Peter's Hospital for Stone. It may have been there that his interest was directed to urology. He was a general surgeon, but his special interest lay in genito-urinary work.

His appointment to the senior staff at Bart's was made in 1913, and he became residential warden of the College, a post long held in former years by the famous historian of the hospital, Sir Norman Moore. Ball retained this post until 1921; he was also sub-dean from 1920 to 1925. In 1930 he succeeded Dr. T. W. Shore as dean of the college. Dr. Shore had reigned in that position for twenty-four years. It was said of Augustus Caesar that he had found a city of brick and had left it a city of marble. Shore and Ball between them did a similar work for St. Bartholomew's. Forty years ago it had the reputation of being the dingiest and shabbiest of the London medical schools, though no exterior drab could dim the brilliance of the work that was done there nor the greatness of Bart's men. In Shore's time as dean great improvements were made, the library completed, a new dissecting room built, and modern operating theatres and pathological laboratories and a surgical block. Ball crowned his predecessor's work, and the consummation was reached in 1935, when, on the departure of Merchant Taylors' School, the pre-clinical departments were housed on the site in buildings opened by the Prince of Wales, afterwards Edward VIII. Here on a tranquil island, still within the confines of the City, only a few minutes' walk from the main hospital, was to be found an extraordinary blend of the mediaeval and the modern. Ball himself rejoiced especially in the college hall, with its hammer-beam roof, now sadly damaged by enemy bombs, and in the mellowed red brick of the Charterhouse buildings close by; but the equipment of the College in its new home was as up-to-date as any medical school could wish. Later the new department of anatomy was opened—as fine a department as can be found anywhere. Much of this was due to the drive and foresight of Girling Ball and the donations he was able to coax out of City and other purses. During that period, from 1936 to 1940, he was dean of the Faculty of Medicine of the University of London and member of the Senate.

During the first European war Girling Ball was medical officer in charge of the military wing at Bart's, and also, in 1917-18, surgeon specialist attached to the 53rd General Hospital (T.F.) of the British Expeditionary Force. When the second European war was threatening and the evacuation of London medical schools became necessary, it was a great satisfaction to him to have got the pre-clinical departments in working order at Cambridge by September, 1939, and part of the clinical school established at Hill End, St. Albans. He was made sector head of St. Bartholomew's and Royal Free Hospitals under the E.M.S. in March, 1939. He had also become, in September, 1938, surgical consultant to the Royal Air Force.

In spite of the absorbing claims of his own practice as a consulting surgeon and his work at Bart's he found time for other activities. He became a member of the council of the Royal College of Surgeons in 1934, and was made Vice-President of the College in 1943. He had taken its Fellowship at the age of 26, in 1909 he had gained the Jacksonian prize for a dissertation on the treatment of surgical affections by vaccines and antitoxins, and he had been Hunterian professor in 1912. In the Royal Society of Medicine he was most prominently identified with the Section of Urology, of which he eventually became president, but he also took part in the general affairs of the Society, becoming successively honorary secretary and treasurer, and in 1938-40 succeeding Sir John Parsons in the presidential chair. Girling Ball was also a leading spirit in the organization of international conferences, and was the key man in at least one large congress of the kind in London. He had abounding energy himself and also the gift, which does not always go with it, of stimulating other people to energetic action.

He became a member of the British Medical Association in 1910, but apart from the appearance of his name as honorary secretary of the Section of Surgery at the Annual Meeting at Newcastle in 1921 he did not become closely identified with its work until recent years. In 1938 he became a member of the Central Medical War Committee, and in 1943 a member of its executive. He gave active help on a number of other Association committees concerned with the war situation, such as the emergency hospital organization, and release and demobilization of practitioners. He was a valued member of the Medical Planning Commission, making many useful contributions to its interim report. He was also on the original Representative Committee which engaged in the early conversations with the Minister of Health on the projected National Health Service.

In addition to the hospital work already mentioned, he was surgeon to the East London Hospital for Children in 1910-12; in 1910 he became surgeon to the Alexandra Hospital for Hip Diseases, and in 1934 to the Royal Masonic Hospital. He was consulting surgeon to the City of London Truss Society, St. Luke's Hospital for Advanced Cases, and the Foundling Hospital. He was the author of only one book, *Diseases of the Kidney*, published in 1932, which was written in collaboration with Dr. Geoffrey Evans. He wrote numerous papers on pathological and genito-urinary subjects, and his "cases from the wards" were a noteworthy feature of *St. Bartholomew's Hospital Reports*. He held the post of joint lecturer on surgery for many years, and as a lecturer his direct, refreshing style, untrammelled by notes, was very popular with students.

Girling Ball received the honour of knighthood in 1938 on the completion of the great work of reconstruction of his College. Had he not, at the age of 19, found his way through the gates of St. Bartholomew's Hospital he might have gone elsewhere in the city of merchant princes and have built up a great business organization, for he had true business instinct and the vision of a master builder. He was a likeable man, all the more so because of his impetuosity and forthrightness—a man who said what he had to say in the directest possible speech. Until his breakdown he appeared to have an enormous store of energy. He was very proud to be president of the Bart's Rugby Football Club, though he had long since betaken himself for recreation to the golf course. He will be remembered affectionately, and his death will be keenly felt, by generations of Bart's men.

A memorial service was held in the Church of St. Bartholomew-the-Great, West Smithfield, London, E.C.1, on Wednesday.

PROFESSOR ACHARD

Prof. Emile Charles Achard, the news of whose death on August 7, 1944, was delayed by the war, was born on July 24, 1860, in Paris, where he received his medical education, being a fellow student with the eminent surgeon Prof. Hartmann, who is still with us. He qualified at the Paris Faculty of Medicine in 1887 with a thesis on hysterical apoplexy. In 1910 he was appointed professor of general pathology and therapeutics, and in 1919 professor of clinical medicine. He was successively attached to the Beaujon and Cochin Hospitals in Paris. He held many other appointments at home and abroad, of which the most important were member of the Institut, Commander of the Legion of Honour, and general secretary of the Académie de Médecine. In 1937 he was elected Honorary Foreign Fellow of the Royal Society of Medicine, having been elected honorary member of the Clinical Section in 1933. He was also member of the Royal Academy of Rome, and had conferred on him the Order of the Crown of Italy.

Achard was a prolific writer. Besides many articles in Brouardel and Gilbert's *System of Medicine*, he was the author of works on typhoid fever, encephalitis lethargica, and oedema in Bright's disease, which was translated into English, on diseases of the blood, nervous system, kidneys, and suprarenals. He was also co-editor of *Archives de Médecine Expérimentale et d'Anatomie Pathologique*.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Marmaduke Sheild Scholarships have been awarded to D. Bulmer, of Peterhouse, and R. P. Holmes, of Trinity College.

During the month of June titles of the degrees of M.B., B.Chir. were conferred by diploma on S. M. Martin, of Girton College.

UNIVERSITY OF LONDON

The title of Reader in Bacteriology in the University has been conferred on John Cecil Cruickshank, M.B., Ch.B.Ed., in respect of the post now held by him at the London School of Hygiene and Tropical Medicine.

The degree of D.Sc. has been conferred on A. C. Frazer, an internal student at St. Mary's Hospital Medical School.

UNIVERSITY OF SHEFFIELD

At a meeting held on July 13 the University Council received with regret the resignation of Dr. C. Gray Imrie, F.R.C.P., of the post of lecturer in physiology, and of Dr. J. MacA. Croll as lecturer in bacteriology, and accorded them its thanks for their services to the University.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Moynihan Lecture will be delivered at the College (Lincoln's Inn Fields, W.C.) by Prof. Willem Noordenbos, Hon. F.R.C.S., professor of surgery in the University of Amsterdam, on Wednesday, Aug. 1, at 5 p.m. Fellows and Members of the College are invited to attend. Students and others, who are not Fellows or Members of the College, will be admitted on presenting their private visiting cards. Tea will be served before the lecture.

At a meeting of the Council of the Royal College of Surgeons of England, held on July 12, Sir Alfred Webb-Johnson was re-elected President, and Mr. C. Max Page and Major-Gen. W. H. Ogilvie were elected Vice-Presidents.

Prof. W. E. Le Gros Clark, F.R.S., was elected a Hunterian Professor for 1945.

The following appointments were made for 1946:

Hunterian Professors.—Mr. Ivor Lewis, one lecture on the Surgical Treatment of Carcinoma of the Oesophagus with Special Reference to a New Operation for Growths of the Middle Third; Mr. D. Hamilton MacLeod, one lecture on Endometriosis—a Surgical Problem; Lieut.-Col. B. W. Rycroft, R.A.M.C., one lecture on War Wounds of the Eye and their Modern Treatment; Lieut.-Col. A. L. d'Abreu, O.B.E., R.A.M.C., one lecture on War Surgery of the Chest; Wing Cmdr. W. D. Coltart, A.A.F., one lecture on Fractures and Dislocations of the Astragalus; Lieut.-Col. D. S. P. Wilson, R.A.M.C., one lecture on Missile and Traumatic Injuries of the Urethra and their Treatment; Major C. H. Gray, R.A.M.C., one lecture on Sciatica; Mr. S. H. Wass, one lecture on the Odontomes and Other Affections of the Jaws: their Pathology, Diagnosis, and Treatment; Mr. J. D. Fergusson, one lecture on Original Observations on Carcinoma of the Prostate treated with Oestrogens, based on a Study of Serial Perurethral Biopsies performed over Periods of from Six Months to Two and a Half Years during Continued Oestrogen Therapy; Mr. John Charnley, one lecture on the Conservative Treatment of Fractures of the Femoral Shaft; Major P. W. Clarkson, R.A.M.C., one lecture on the Treatment of Face and Jaw Casualties; Capt. C. G. Rob, *M.C.*, R.A.M.C., one lecture on the Diagnosis of Abdominal Trauma in Warfare.

Arris and Gale Lectures.—Profs. O. G. Edholm and H. Barcroft, two lectures on the Circulation in Human Skeletal Muscle; Mr. Norman L. Capener, one lecture on Physiological Rest.

Erasmus Wilson Demonstrators.—Six demonstrations on the pathological contents of the Museum, one by Mr. L. E. C. Norbury, O.B.E., two by Col. R. Davies-Colley, C.M.G., A.M.S., and one by Mr. T. M. Tyrrell, with ophthalmic pathological material. There are two vacancies.

Arnott Demonstrator.—Prof. A. J. E. Cave, six demonstrations on the contents of the Museum, to be combined with professorial lectures.

Beginning in the autumn of this year there will be a lecture in the College every Thursday at 5 p.m.

Subject to a satisfactory scheme being submitted, it was decided to seek power by Charter at a future date to institute a special Final Fellowship examination in oto-laryngological subjects. It was also decided to hold an additional Primary Examination for the Fellowship in January, 1946.

Sir Frank Colyer was reappointed Honorary Curator of the Odontological Collection; Dr. F. S. Cooksey was elected an additional examiner for Part II of the Diploma in Physical Medicine during the current collegiate year; and Mrs. H. P. Herbert was reappointed a Leverhulme Research Scholar.

It was decided to recognize the post of resident surgical officer at the Royal Infirmary, Oldham, for the six-months surgical practice required of candidates for the Final Fellowship examination.

Diplomas of Membership were granted to R. B. Broughton, R. A. Green, R. Hierons, and H. M. Wotzilka.

Diplomas in Psychological Medicine and in Laryngology and Otology were granted jointly with the Royal College of Physicians of London to the following successful candidates:

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—J. A. Ainslie, W. H. Craike, J. Ff. Edwards, M. C. Hood, J. B. Randell, W. W. Roberts, H. A. Thorner.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—Géza Grünberger, J. L. Insley, A. A. MacGibbon, M. G. Marks, G. S. Midgley, G. H. Vawda, and H. Zalin.

Medical News

A deafness clinic has recently been established at the National Hospital, Queen Square, London, W.C.1. The work of this clinic will be devoted to the investigation and treatment by means of hearing aids and otherwise of deafness in all its forms, excluding those accompanied by active otitis media with ear discharge. Patients are seen, by appointment only, at 9 a.m. or 1.45 p.m. on Mondays, Tuesdays, and Wednesdays. All appointments should be made by application, telephone or letter, to the Deafness Clinic, The National Hospital, Queen Square, London, W.C.1. Terminus 7721.

In view of possible renewed negotiations with the Minister of Health, the Council of the Faculty of Homoeopathy feels that it is important to know the exact location of all physicians practising homoeopathy in the United Kingdom. Those not already in touch with the Faculty of Homoeopathy might contact the honorary secretary immediately at the London Homoeopathic Hospital, Queen Square, W.C.1.

A leave course for doctors of the U.S. and Dominions Forces, arranged by the Faculty of Medicine, University of Edinburgh, and the British Council, was held at Edinburgh from July 16 to 20. The programme included lectures by the professional staff and by Dr. Andrew Davidson, Chief Medical Officer, Department of Health for Scotland, and visits to medical institutions.

Negotiations have been completed between Lord Astor, the National Trust, the Bucks County Council, and various hospital authorities for converting to civilian use the Canadian military hospital on Lord Astor's estate at Cliveden. The hospital, which can accommodate over 700 patients, will be administered by the Bucks County Council. The Cliveden estate was given to the National Trust by Lord Astor in 1942, with an endowment for its upkeep.

At a meeting of the Hertfordshire County Council on July 23 reference was made to a proposal of the authorities of St. Bartholomew's Hospital to build a new hospital in the Watford area at a cost of about £1,000,000. The new hospital would probably have some 600 beds, and would include a medical school staffed by highly experienced consultant physicians and surgeons. The council appointed a committee to conduct negotiations with representatives of the hospital.

Capt. R. D. Mareth Timms, L.M.S.S.A., has been appointed Officer (Brother) in the Order of the Hospital of St. John of Jerusalem.

Dr. H. N. Ganguli, sub-assistant surgeon, Piphima, has been appointed M.B.E. (Civil Division) for services to the Forces in connexion with the Burma Campaign from May 16 to Aug. 15, 1944.

The Heberden Society, which was started at the British Red Cross Society's Clinic for Rheumatism, Peto Place, London, for the study of the rheumatic diseases, will in future admit as members physicians and surgeons actively interested in these diseases from any part of the country. Membership is limited to one hundred. Further particulars may be obtained from the hon. secretary, Dr. Kenneth Stone, 21, Wimpole Street, W.1. There will be a meeting extending over two days early in November to open the winter session.

A British Medical Exhibition arranged by the British Council was opened at the Sao Jose Hospital in Lisbon last month by the Portuguese Under-Secretary for Education. The exhibition included books and instruments, and British medical films have been shown. The Portuguese Minister of Education sent a message paying tribute to the work of the British Council and its Institutes in Portugal, and expressing the hope that more such exhibitions would be arranged. The British Minister, Mr. H. Ashley Clark, said that medical relations between the two countries were almost as old as the alliance itself, and that the exhibition showed that still more remained to be done in this field.

At a meeting of the directors of the Society for Relief of Widows and Orphans of Medical Men held on July 4, £2,047 10s. was vpted for the payment of the half-yearly grants to the 55 widows in receipt of relief. A cheque was presented to Mr. Edward J. Blackett in recognition of his forty years' service as secretary. Membership of the society is open to any registered medical man who at the time of his election is residing within a twenty-mile radius of Charing Cross. Only widows and orphans of deceased members are eligible for relief. Full particulars and terms of subscription may be obtained from the secretary at 11, Chandos Street, Cavendish Square, W.1.

Owing to difficulties in dispensing, a demand has grown for the ready-packed sterile base suitable for preparing penicillin ointments. Arrangements have now been made by the Ministry of Supply, and three firms are able to offer a sterile ointment base in pots of about 1 oz. (i.e., 30 grammes) to which an appropriate quantity of penicillin solution can be added and readily incorporated. This is to meet hospital demands. The firms are: Boots Pure Drug Co. Ltd., Station Street, Nottingham; British Drug Houses Ltd., Graham Street, City Road, London, N.1; Burroughs Wellcome and Co., 12, Red Lion Square, London, W.C.1.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* measles notifications fell by 1,460, whooping-cough by 144, dysentery by 82, and acute pneumonia by 72; those for scarlet fever went up by 57, and for diphtheria by 37.

There was an increased incidence of scarlet fever in the counties round London, but little change elsewhere. The largest local variations in diphtheria were increases of 25 in Yorks West Riding, 23 in Durham, 13 in Warwickshire, and a fall of 14 in Lancashire; the rise in Durham was due mainly to an outbreak in Weardale R.D. 17. A fall in the incidence of measles was general throughout the country, although in Suffolk there was a rise of 47.

The incidence of dysentery, 210, was the lowest since December. The largest returns were those of Lancashire 49, London 38, Kent 14, Essex 11, Lincolnshire 11, Yorks West Riding 11.

In *Scotland* scarlet fever notifications went up by 38, and those of diphtheria by 14, but other infectious diseases fell by the following numbers: measles 84, acute primary pneumonia 37, whooping-cough 25, dysentery 14. The rise in diphtheria occurred in the east and south-east.

Typhus in Vienna

Typhus has been reported from Vienna. It has been stated by the Austrians that it has been impossible to remove garbage for some months, and large piles of refuse have accumulated everywhere.

Week Ending July 14

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,303, whooping-cough 1,098, diphtheria 422, measles 4,075, acute pneumonia 387, cerebrospinal fever 52, dysentery 206, paratyphoid 9, typhoid 10, poliomyelitis 12.

No. 27

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 7.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945 (a)	(b)	(c)	(d)	(e)	1944 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	51	4	27	4	1	45	2	24	1	—
Deaths		1	1				1	1		
Diphtheria	458	21	96	66	16	425	12	91	62	13
Deaths	5	—	2	—	—	5	—	—	2	2
Dysentery	210	38	46	3	—	132	5	48	2	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	4	—	—	—	—	1	—	1	—	—
Deaths		—					—			
Erysipelas			35	5	—			41	6	—
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				55					5	
Deaths	40	4	8	17	2	35	8	13	12	5
Measles*	4,544	220	77	40	13	2,571	130	77	210	29
Deaths	—	—	3	—	—	1	—	2	1	—
Ophthalmia neonatorum	61	4	14	1	—	56	—	13	—	—
Deaths										
Paratyphoid fever	6	—	—	—	—	8	—	9(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	352	19	5	3	1	539	45	11	2	1
Deaths (from influenza)	5	—	—	—	1	10	1	1	—	—
Pneumonia, primary			165	10				179	15	
Deaths		18		8	5		35		8	7
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	15	2	1	—	1	7	—	5	1	—
Deaths		—					—			
Puerperal fever		1	14		—		—	16		—
Deaths										
Puerperal pyrexia‡	120	12	11	2	1	164	11	14	—	1
Deaths		1					1			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,312	55	224	25	40	1,390	87	164	19	52
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	11	2	1	6	—	3	—	4	5	2
Deaths	—	—	—	—	—	2	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,050	67	21	24	12	2,325	171	62	73	15
Deaths	2	2	—	2	—	16	3	5	1	2
Deaths (0–1 year)	296	36	33	37	11	312	48	63	31	16
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,874	509	520	194	103	4,717	1217	585	196	142
Annual death rate (per 1,000 persons living)			11·8	12·5	§			13·4	12·7	§
Live births	6,796	788	889	466	254	7,579	914	935	411	285
Annual rate per 1,000 persons living			17·8	30·1	§			19·0	—	§
Stillbirths	181	20	38			194	20	36		
Rate per 1,000 total births (including stillborn)			41					37		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to movements of population, birth and death rates for Northern Ireland are still not available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Binocular and Monocular Vision

Q.—*In a recent course on mental deficiency it was stated that very few people have centralized binocular vision, the image being usually distorted towards one eye, thus making that eye dominant, and that sometimes in a child with a specific disability in learning to read there was a condition of cross-laterality (e.g., left-handed but right-eyed, or vice versa), although it was also stated that there was no scientific evidence that this cross-laterality is the cause of the specific disability in learning to read. Could some more information be supplied as to the correlation of cross-laterality, and a simple experiment to detect the condition be indicated—such as would be possible to apply in a special school for dull children?*

A.—It is difficult to understand what is meant by centralized binocular vision. The question seems to be whether the people have straight eyes, in which case about 80% will have normal binocular vision, since statistics show that a very small percentage of people can maintain their eyes in a normal position without good binocular vision. If this is not so, then a squint is present, and this would be the same whether the patient is mentally deficient or not.

When binocular vision has not been developed, the dominant eye would be decided primarily by the refraction of the eyes. There is no evidence that right- or left-handedness has any real influence, in spite of an occasional case of left-handedness with a left master eye.

The possibility that a child may have diplopia could increase the difficulty of learning to read, but diplopia usually gives way to suppression of the second image, so that the child uses monocular vision. As no stereoscopic vision is required for reading, monocular vision cannot be accepted as a factor in the child's disability to read or write. "The image usually distorted towards one eye, thus making that eye dominant," suggests that the other eye in these cases either is amblyopic or is not accurately corrected with spectacles. A very careful refraction is necessary in mentally defective children, since the subjective test is of little value.

Shock and Haematemesis

Q.—*Has shock ever caused gastric haemorrhage?*

A.—It is assumed that "shock" is used to mean traumatic shock or wound shock. This may cause multiple focal lesions in the gastro-intestinal tract which are attributed to anoxic tissue necrosis secondary to vasoconstriction and which may give rise to severe bleeding. Emotional shocks may also be followed by haematemesis, more particularly in the patient who already has a chronic ulcer. This is because strong emotions are accompanied by extreme congestion of the gastric mucosa, as demonstrated by Wolf and Wolff (1943). Alvarez describes the case of an inventor who had six haematemeses in three years, each one associated with setbacks in the invention on which he was working.

Diphtheria Inoculation of Allergic Subject

Q.—*I vaccinated a baby aged 7 months. A week later he suddenly developed a severe urticarial type of rash and appeared acutely ill. The site of vaccination was normal and the arm not particularly inflamed, and I had no further trouble. The mother had asthma during her childhood, and she has another boy, who suffers from slight eczema of the hands and feet. The parents are anxious for the child, now 14 months old, to be immunized against diphtheria and whooping-cough, but are afraid of the possible reaction. Is this likely to occur with A.P.T. or with pertussis vaccine?*

A.—Allergic rashes after primary vaccination occur in a small proportion of children, and the family history in this case suggests that the allergic predisposition has been inherited. It would, therefore, be hazardous and unwise to give this child an injection containing an appreciable amount of a foreign protein: for example, if he were to develop diphtheria an injection of antitoxin might provoke a serious reaction or even prove fatal. On the other hand, the amount of protein in diphtheria toxoid is very small and immunization with A.P.T. should be a safe procedure. As a precautionary measure a preliminary Schick test may be done, and if there is a definite pseudo-reaction—i.e., a zone of erythema not less than 1 cm. in diameter at the sites of injection of both test and control material—immunization should be carried out cautiously, preferably with small frequent doses of formol-toxoid. The child should be under observation for 1 to 2 hours after an injection, and a hypodermic syringe charged with adrenaline kept handy. Immunization against pertussis, although very desirable, is still not sufficiently reliable to justify its recommendation in a child in whom the injection of a concentrated bacterial vaccine might elicit a rather sharp reaction.

Colostomy for Carcinoma of Rectum

Q.—*In cases of inoperable carcinoma of the rectum without obstruction, does a colostomy really give relief or does it only add another worry to the distressed patient?*

A.—In course of time a carcinoma of the rectum has an almost inevitable tendency either to occlude the lumen of the gut or to become ulcerated; sometimes it does both. When ulceration occurs sepsis comes in its train, and as a rule this is followed by a more rapid spread of the cancer. The performance of a colostomy well above the growth will prevent the supervention of obstruction, avoid the irritation of the growth by the passage of faeces, and so lessen the risk of haemorrhage, ulceration, and sepsis; it also enables palliative operations (such as the removal of portions of papillary growths or the application of radium) to be carried out in a cleaner field and with a better prospect of benefit. In growths which are already ulcerated the performance of a colostomy will often cause a great improvement in the local condition.

To a very small minority of patients the very idea of a colostomy is so repellent that they prefer to tolerate greater rectal discomfort to avoid this operation; with such patients the only absolute indication for colostomy would be severe mechanical obstruction. To most patients, however, the benefit of a properly performed colostomy outweighs its disadvantages, for if it be well cared for the patient can continue the ordinary avocations of life without undue discomfort.

Parathyroids and Calcium

Q.—*In man the parathyroids control the output of calcium from the store in the bony skeleton and maintain the constant level of the blood calcium. Is this parathyroid control found in all animals with bony skeletons?*

A.—The statement made in the question is correct for all mammals, although some experimental evidence suggests that the primary action is on the blood phosphorus.

Fitting of Smith-Hodge Pessary

Q.—*In fitting a Smith-Hodge pessary, would it be advisable in some cases to bend the upper end in such a way as to fit it in front of the cervix instead of in the posterior fornix? Would such a position be likely to cause trouble during menstruation?*

A.—The essential features of the Hodge pessary are its two curves specially designed to fit the vagina and the adjacent pelvic structure, and the rounded upper end to exert an evenly distributed pressure in the *posterior* fornix. It is used mainly in the treatment of retroversion, and the upward and backward pressure of its upper end on the vaginal wall *behind* the cervix, and on the overlying utero-sacral ligaments, holds the cervix backwards and thereby ensures that the fundus of the uterus will stay forwards. Although it is correct to adjust the length and width of a pessary to suit individual vaginae, if the curves were altered, and particularly if the upper end were placed in front of the cervix, the whole principle of the pessary would be destroyed. The same comments apply to the Albert-Smith pessary. If the idea is to bend the upper end of the pessary acutely forwards to form a loop to fit in front of the cervix and thus hold it backwards, then it should not interfere with menstruation. However, it is not likely to be so efficient mechanically as the standard Hodge or Smith pessary; it might cause the patient discomfort, and the sharp angles projecting into the posterior fornix might cause ulceration of the vaginal wall.

A Swallowed Button

Q.—*A girl of 11 swallows a button, without informing anyone of the event until three weeks have passed and without any indication of anything being wrong. Should an x-ray film be taken to see if it is in the alimentary tract, and if it is, what should be done?*

A.—A swallowed button of any shape or size should be allowed to pursue its way through the alimentary tract without interference from the medical attendant. There is, of course, no harm in satisfying natural curiosity as to the presence or position of the button by taking an *x*-ray photograph or by screening the abdomen, but in general the less fuss made about it the better. No harm is at all likely to come of it.

Value of a Drug

Q.—*I have prescribed syrup. hypophosph. co. and syrup. glycerophosph. co. for years. A new edition of a well-known book on therapeutics and pharmacology says there is no evidence that these preparations are of any value. Do you agree—apart from the psychological value of any "tonic"?*

A.—The statement in the textbook is that "there is no *evidence* that these preparations are of any value." It is one thing to say that preparations have no value, and another to say that there is no evidence that preparations have value. Syrup. glycerophosph. co. contains about 1/30 grain strychnine in a 2-drachm dose, and this alone will have some effect in promoting gastric secretion. Recently an investigation was made of the value as expectorants of the individual constituents of tinct. opii camphorata. To the surprise of the investigator a true expectorant action (of varying extent) was found to be possessed by every ingredient. But until this work was done "there was no evidence" that many of these ingredients had any value.

Climate and Tuberculosis

Q.—*Is the climate of Birmingham and Stratford-on-Avon likely to be deleterious to a tuberculous person, aged 60, accustomed to sea air and high altitudes (Davos) during the last 35 years? The patient had a mild attack 30 years ago (haemoptysis, positive sputum); no activity since. Skiagrams show "snow-storm" lungs and fibrosis and calcification, about one-third of the parenchyma being destroyed. For the past 35 years he has lived on the south coast; 14 years in general practice, 5 years in pathological laboratories.*

A.—Advice on suitable climates is always difficult. Many factors are involved. One recalls an elderly consumptive with extensive but non-progressive pulmonary tuberculosis and much bronchitis and emphysema, who could not live on the south-west coast but flourished at Skegness.

But one may generalize in this case, considering (*a*) that the pulmonary tuberculosis, on history, is unlikely to reactivate; (*b*) that the main dangers will come from bronchitis and emphysema and secondary epidemic catarrhal infections; and (*c*) that he has done very well on our south coast. The ideal climate should be: temperature dry and with the minimum of atmospheric pollution, such as is provided by South Africa at an altitude of 3,000 to 4,000 feet.

The patient has, however, done well in normal working environment on the south coast, and therefore it would be unwise to disturb this excellent result by a move to the less clement climate of the Midlands, especially if the move is into urban conditions. If the move is unavoidable, if the patient is his own master, much can be done by common sense: i.e., confinement to a warm fireside or even to bed during bad weather; avoidance of crowded places such as shops and cinemas during periods of epidemic catarrh, not forgetting the inevitable end of May and of September epidemics. The use of an "air-conditioned" bed-sitting-room can also be considered. During the winter such a patient usually knows when he wakes whether it is a "good" day or a "bad" day, and can plan his day accordingly. Wide-open windows in the winter should be eschewed. Ventilation and not exposure is the aim.

To sum up, treat the inevitable bronchitis and emphysema, or tendency thereto, and more or less ignore the underlying pulmonary tuberculosis.

Intestinal Antiseptics

Q.—*In the annotation "Intestinal Antiseptics" (JOURNAL, Feb. 3, 1945, p. 158) it is stated that "preparations which are not readily absorbed—e.g., sulphaguanidine . . .—are preferable to others which, being absorbed, may have deleterious effects on the kidney." In the JOURNAL of April 22, 1944 (p. 557), it was stated about sulphaguanidine that "when given by mouth two-thirds is absorbed from the gut before reaching the ileo-caecal valve, and that poor concentrations in the blood are due to rapid elimination in the urine and not to poor absorption." It is improbable that both statements can be correct, and it would interest me to know which one is the more accurate.*

A.—When sulphaguanidine is given by mouth about two-thirds is usually absorbed from the intestine. Consequently it is fairly readily absorbed (although less readily than most other sulphonamides, which are almost completely absorbed in the intestine), and the amount of sulphaguanidine requiring excretion by the kidney is practically as great as that of the other sulphonamides. On the other hand, sulphaguanidine and its acetyl derivatives are more soluble at the usual *p*H of urine—e.g., *p*H 6.8 (solubility of sulphaguanidine, 220 mg. per 100 c.cm. at 37° C., and of acetyl sulphaguanidine, 81 mg. per 100 c.cm.)—than are sulphapyridine and acetyl sulphapyridine (solubility approximately 50 and 30 mg.), sulphathiazole and acetyl sulphathiazole (130 and 12 mg.), and sulphadiazine and acetyl sulphadiazine (42 and 92 mg.). (See *J. Pharmacol.*, 1944, **81**, 17.) Sulphadimethyl pyrimidine (sulphamezathine) and its acetyl derivatives are comparatively quite soluble. Renal complications due to blockage by sulphonamide crystals are much less likely to occur during treatment with sulphaguanidine than during treatment with sulphapyridine, sulphathiazole, or sulphadiazine; nevertheless they have occasionally been reported in severely dehydrated patients—e.g., men with dysentery in a hot climate. Accordingly it is correct to state that sulphaguanidine is less dangerous to the kidney than many other sulphonamides are; but this smaller danger is due to its greater solubility rather than to its lower tendency to be absorbed.

INCOME TAX

Assessment of Practice here while Serving Abroad

"Q. X." was called up in November, 1942, and landed in India in May, 1943. A locumtenent was left in charge of his practice. The net profits of the practice—reduced, of course, by the earnings of the locumtenent—have fallen and the operation of the previous year's basis has resulted in demands for tax which have approximated to the amount of the profits. Can any relief be claimed?

*** Section 11 of the Finance (No. 2) Act, 1939, as continued by subsequent Finance Acts, provides for an adjustment "to the profits of the actual year where the actual earned income . . . is not more than four-fifths of the actual earned income as assessed for that year." This particular case is complicated by the fact that in ordinary parlance the "actual earned income" includes income—i.e., Army pay in India—which does not suffer British income tax. On that point the definition of "actual earned income" in subsection 7 (*c*) of the Section referred to above is relevant. That expression means "the amount of earned income that would be assessed and charged . . . if the amount were in all cases computed by reference to the actual income for that year and not by reference to the income for any other year or period." It will be seen that the emphasis is on the difference in basis, and the definition does not appear to us to justify importing into the comparison between "assessed" and "actual" income any income which is not liable to British income tax. On that basis the Section should provide the relief appropriate in equity to such a case as this.

Taking on a Partner

L. P. is selling a half share in his (sole) practice; how does this affect the basis of his assessment? He raises a further question as to what liability (if any) attaches to the new partner for the first year of the partnership.

*** (1) The assessment for this year will be made on the basis of the profits of the practice for the previous year—i.e., the normal basis. But if the profits of this year should fall short of the amount assessed the partners can claim to have the practice regarded as a new one as from the date of sale. In that case the assessment for the part of the year affected would be on the basis of the profits of the actual period. It will be seen that whether such an adjustment would be advantageous will depend on whether the increase in the gross earnings of the practice due to the advent of a second proprietor will be greater or less than the professional expenses incurred by that partner. Usually the advantage lies in allowing the previous year's basis to remain in operation. It is presumably understood that as from the date of the partnership the tax on the assessment is divisible between the partners—which normally operates in favour of the former proprietor.

(2) The previous year's basis of calculating the assessment applies to the practice and not to the individual partners. Assuming, for instance, that the new partnership started as from April 5, 1945, and that the accounts of the practice have been made up to December 31, then the position for the financial year ending April 5, 1946, will be as follows. The assessment, say, £3,000, will be divisible between the two partners on the basis of their shares in the practice, say, 2/3rds and 1/3rd, and they will be liable to account for tax on £2,000 and £1,000 respectively. The incoming partner does not get a tax holiday for his first partnership year.

Allowance for Ground Rent and Repairs

J. C. left his house in London five years ago, and no income tax has been paid on it since. He has been paying a ground rent of £45 a year and has expended £400 (apart from war damage) on repairs and maintenance. Can he claim an allowance for these payments?

*** *Ground Rent.*—If this rent is payable under a "long lease"—i.e., a lease granted for a term exceeding fifty years—J. C. was entitled to deduct tax from the rent under Section 17 of the Finance Act, 1940. In that case he might be well advised to inquire of the lessor whether he will now refund the tax which could have been deducted. (As the lessor is apparently entitled to exemption from tax he may then be able to reclaim the tax from the Revenue.) There is no other means by which J. C. can get any relief in respect of these payments. *Repairs, etc.*—The income-tax allowances are given against the tax payable on the property, and as no such tax was paid no relief can be claimed.

Salaried Appointment: Hotel Expenses

"X.Y.Z." held for a short time an appointment for which the remuneration was £700 a year, without board and lodging. His wife and children were living in another part of the country. Can he claim an allowance for the cost of his hotel accommodation?

*** No; the £700 is chargeable to tax, and the Income-Tax Acts contain no provision under which "X.Y.Z." could claim a deduction for the additional cost of living resulting from his domestic circumstances and locality of the employment.

Return from India

J. B. returned from service in India, leaving India on July 6, 1944, from which date he received British pay at 24s. 6d. a day, increased by 2s. 3d. a day as from Oct. 18. What tax is he liable for in this country for the year ended April 5, 1945? He was married in May, 1945.

*** The calculation on the figures given is as follows:

	£ s. d.	£ s. d.
Amount of income (Service pay)	386 0 0	
Deduct uniform allowance	30 0 0	
		356 0 0
Less personal allowance (single)		80 0 0
		276 0 0
Of which £165 taxable at 6s. 6d.		53 12 6
and £111 taxable at 10s.		55 10 0
		109 2 6
Life assurance allowance, £54 at 3s. 6d.		9 9 0
Net liability		£99 13 6

Changes in Employment and Service in 1944-5

J. G. qualified in December, 1943, but his earnings for 1943-4 were below the exemption limit. From April, 1944, to August he earned £239 as a locumtenent and tax was deducted under P.A.Y.E. From Oct. 7 to the end of February, 1945, he served in the R.A.M.C. and tax was deducted at £7 per month. At the end of February he came on to Indian rates of pay. No refund of tax has been made to him since leaving civil employment.

*** The deductions of £7 per month by the Army authorities were evidently intended to be approximate and subject to final revision—a revision which has not yet been made. In view of the fact that J. G. was not earning from the end of August to Oct. 7, it is practically certain that some repayment is due to him. Unfortunately tax offices are apparently at present in arrear with their work, and J. G.'s transference to the Indian Command may have caused still further delay in settling his British liability. A letter addressed to the Chief Inspector (Departmental Claims Branch), The Hydro, Llandudno, may help to expedite the matter. Full particulars of past employment and service in the R.A.M.C. should be given.

LETTERS, NOTES, ETC.

Patulin et al.

Mr. F. BERGEL writes: I read with interest your annotation "Pharmacology of Patulin" (*Journal*, June 30, 1945, p. 915). May I draw attention to a small error which occurred in your article. You say: "It appears to be identical with claviformin,[2] clavatin, and clavacin.[3]" Footnote 3 quotes: Wiesner, B. P., *Nature*, 1942, **149**, 356. I am afraid that this quotation does not contain any information as to the identity of the three preparations, but that the identity of claviformin with clavatin and patulin was published for the first time in a letter to *Nature*, 1943, **152**, 750, of which I attach a reprint. It would therefore have been correct to write footnote 3 after clavatin and to quote the above-mentioned letter to *Nature* under footnote 3.

Epilepsy and Menstruation

Dr. MURIEL KEYES (Harrogate) writes: For 20 years I was able to observe, unusually closely, a female epileptic; and detailed daily records were kept the whole of this time *re* fits, emotional behaviour, and general health. Attacks did occur at other times, but they were most frequent just before or at the actual onset of menstruation; this was recognized by the patient herself and her attendant, also that any annoyance or emotional upset might provoke a minor or major attack. She was allergic to grass and flower pollens and the "tan litter" used at horse shows, etc., and I often wondered whether either some allergy to one of her own hormones, or a temporary waterlogging of the pituitary, etc. (upsetting the normal cerebral circulation at a certain stage of the menstrual cycle) was the precipitating factor in attacks. Later, several patients with pre-menstrual distress and menstrual headache benefiting by treatment with ammon. chlor., I hoped to try this on a menstrual epileptic. In the gynaecological clinic of Mr. Alfred Gough I was permitted to treat such a case. A young woman, 35 years, reported with epileptic attacks of 6 years' duration, occurring only at the time of menstruation (which was preceded by painful breasts and pain in head). She was given 0.6 gramme of ammon. chlor. three times a day, starting on the fourteenth day from onset of each loss; as her periods are irregular (5–7-week intervals) she has to carry on from fourteenth day up to the onset of next loss; at this time no domestic salt or soda bic. is allowed. Beyond one slight fit in the first treatment course she has been entirely free of all "attacks" for 12 months, and this week reported to ask whether she might consider marriage. I am indebted to Mr. Gough both for the opportunity of treating this patient and for permission to publish the case. (See "Any Questions?" March 17, 1945, p. 396; and notes on April 7, p. 504, and May 26, p. 758.)

Sterilizing Paraldehyde

Mr. T. D. WHITTET (pharmacist, Charing Cross Hospital) writes: In the reply to the question on the sterilizing of paraldehyde (June 9, p. 829) it is inferred that paraldehyde cannot be sterilized by autoclaving. In a paper by Marston and Allchin (*Pharm. J.*, Nov. 7, 1941, p. 152) the following points were established: (*a*) Whilst paraldehyde is strongly bactericidal to non-sporing organisms, its action against sporing organisms such as the *Clostridia* is very slow, and hence paraldehyde for parenteral injection should be sterilized. (*b*) Paraldehyde can be autoclaved at 130° C. for 30 minutes without appreciable decomposition. (*c*) Paraldehyde for injection should be issued in glass ampoules since it attacks rubber caps. I have prepared several batches of paraldehyde ampoules and have tested them by the *B.P.* methods after sterilization and confirm the results published in the above-mentioned paper.

Fate of a Threepenny Bit

Dr. NORMAN FLOWER (Yeovil) writes: This record of a complication following an emergency caecostomy may well be unique. At the operation the caecum could not be delivered in order to build up a satisfactory "bottle-neck." A de Pezzer catheter, with the terminal cone cut off, was introduced. Drainage was good for the first few days, but gradually deteriorated in spite of constant syringing, and there was also a tendency to leak alongside the tube. The catheter was troublesome to withdraw, but with steady traction it suddenly came away with a jerk. Examination of the catheter at once revealed the cause of the obstruction. Snugly fitted into the cup of the de Pezzer was a black and very corroded silver threepenny bit, which had been exerting a pronounced valvular action. The patient admitted that he well remembered occasions on which all the threepenny bits in the Christmas pudding had not been accounted for!

Management of Persistent Occipito-posterior Presentations

Dr. A. H. MORLEY (Mill Hill, N.W.7) writes: There can be no doubt that the best treatment of this most disconcerting complication of labour is manual rotation to an anterior position of the occiput, usually followed by the application of forceps, but this may fail or, on occasion, be impracticable. Is there any means of minimizing or preventing extensive perineal laceration caused by the arrival of a head "face to pubes"? I suggest that there is. One most noticeable feature of this type of case is the refusal of the head to remain "crowned." It slips back in an aggravating manner between the pains. If, when the head is nearly crowned, a pad is applied to the stretched rectum the head can be "held," and during the interval between the pains appropriate pressure forwards will slowly deliver the head. In a recent case so delivered there was no tear, external or internal, though the child weighed 7¾ lb. The point I wish to make is that it is an obstetrically sound procedure, as it promotes *flexion*, and consequently tends to produce a smaller diameter for the vulva, if one is dealing with an occipito-posterior position. Conversely, it is a procedure to be avoided in a normal delivery, as it encourages extension and a large diameter.

Treatment of Plantar Warts by Injection

Dr. H. N. ROSE (Ilford) writes: The present accepted methods of treatment of plantar warts are: (1) repeated applications of caustics or caustic plasters; (2) curettage; (3) carbon dioxide snow; (4) *x*-ray application. None of these is consistently successful. Repeated applications of caustics are tedious and often painful. Curettage and carbon dioxide snow may prevent walking for several days, and facilities for *x*-ray treatment are not always easily available. During the past eight years over 120 cases of plantar warts have been treated successfully by a simple method of injection, not, I believe, previously described. A solution of 5% phenol is injected by means of a dental anaesthetic syringe and needle. An ordinary hypodermic syringe and needle does not develop sufficient pressure on injection to overcome the resistance of the tissues. After cleansing the skin and wart with ether, the needle is inserted intradermally into healthy skin about 3 mm. from the edge of the wart and thence into the deep portion of the wart. A total of 3 to 15 minims of the solution is injected, dependent on the size of the wart. In a large wart it is beneficial to perform several circum-

ferential injections. When seen after 7 days the wart has shrivelled in size and is of bluish-black colour. After 3 to 4 weeks it has completely disintegrated. If too much solution is used some may infiltrate below the wart or escape externally. In the former case a blister develops. This may cause slight discomfort on walking but has no effect on the ultimate result. The pain which most patients experience on walking is usually abolished by the injection. This method has also been successfully employed in cases of warts on the hands and fingers, including the flat warts which occur on the skin at the sides of the finger-nails. The mode of action of the injection may be due to any or all the following factors: (1) tissue necrosis of the wart, caused by the local toxic effect of the solution; (2) tissue necrosis of the wart by the disruptive pressure of the injection; (3) thrombosis of the wart's vasculature; (4) destruction of the causative virus by the antiseptic action of the solution. The successful use of other solutions is matter for research.

Chloroform Anaesthesia

Col. G. S. THOMSON, I.M.S.(ret.), writes: As I have only recently returned as, *en route*, specialist surgeon in charge of 797 "priority" evacuees, I am reading back numbers of your valuable *Journal*. In the issue for Feb. 19, 1944 (p. 263), are two letters on anaesthesia misadventure incriminating chloroform. The writers are young enough to omit all reference to India's magnificent Nizam of Hyderabad's Commission of Inquiry thereon. At the request and by the suggestion of Major Percy Benson, I.M.S., resident surgeon and medical adviser to the Nizam, Sir Lauder Brunton was invited to Hyderabad as chief investigator. The "open method" was in use successfully there for years; it involved no elaborate apparatus or technique: just a cone of sterile, stiff cardboard paper, one inch in diameter, open at its apex, with a 2-oz. plug of cotton-wool secured in position with a safety-pin. The anaesthetist kept a tongue forceps in the left lapel of his clean, white gown, poured one drachm of chloroform on the plug of wool, told the patient to count up to twenty and take deep breaths. In my 37½ years in India with 2,500 midwifery deliveries under the "open method" I lost only one European mother 5 hours after delivery due to embolism: she was a primipara, aged 25, of good physique, at full-term and had been six hours in labour. Chloroform enabled me to perform 106 suprapubic stone extractions with only one death—the 106th.

Acupuncture

Dr. T. STACEY WILSON (Birmingham) writes: In the reply given in the *Journal* of July 7 (p. 34) to a question about acupuncture no reference is made to the value of this method of treatment in certain cases of sciatica. Fifty years ago, when I was one of the honorary physicians at the Birmingham General Hospital, acupuncture of the sciatic nerve where it is palpable at the back of the thigh was a recognized method of giving relief to certain cases of sciatica. When the sciatic nerve is not only abnormally tender but can also be felt to be somewhat swollen and hard, there is a probability that the nerve sheath is distended with inflammatory exudation. In such circumstances the transfixion of the nerve with a large-size round acupuncture needle will allow the fluid to escape and give relief from pain. It was usual to allow the needle to remain *in situ* for 15 or 20 minutes in order to lessen the rapidity with which the opening in the nerve sheath would close after the withdrawal of the needle. When an inch or more of the sciatic nerve was felt to be swollen and hard two needles could be inserted three-quarters of an inch apart instead of only one. The relief given was so definite that if the pain recurred within a day or two the patient would ask for a repetition of the treatment. This method of treating sciatica had the advantage of making clear a case of malingering, for such a patient would not run the risk of having a repetition of the treatment.

Resuscitation after Drowning

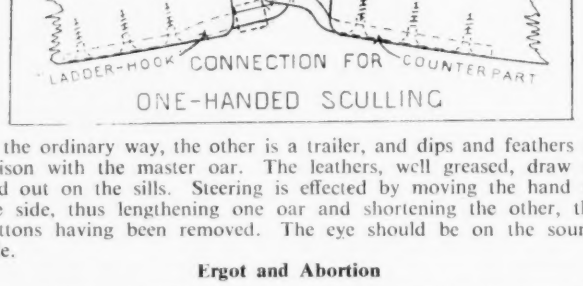
Dr. JOHN YATES (Cockfosters, Herts), writes: I have come across the following passage in *The Vicar of Morwenstow*, by S. Baring-Gould (published 1876). It describes the attempted resuscitation of a member of a shipwrecked crew. "We succeeded in getting hold of him at last, and brought him ashore. Unfortunately there was no doctor by, or any one who was experienced in dealing with cases of drowning. We did as best we knew, following the old usage of throwing him across a barrel." Is this a method of artificial respiration by rocking?

Relief of Tinnitus

Dr. G. C. CATHCART (London, W.1) writes: In the *Journal* of June 30 (p. 934) a correspondent asks a question concerning the treatment for relief of "noises in the head." The answer given was to try a course of short-wave diathermy coupled with the use of nicotinic acid and the usual sedatives. I have a short-wave diathermy machine and have given it a fair trial with no good results. I have also tried nicotinic acid and the usual sedatives with equally no good results. In the 2nd edition of my book, *The Treatment of Chronic Deafness by the Zünd-Burguet Electrophonoide Method*, out of 665 cases of deafness there were 230 cases of tinnitus or "noises in the head," of whom 158, or 68.7%, improved after treatment. In 1934 I published an account (*Proc. roy. Soc. Med.*, **27**, 897) of 7 cases of deafness and tinnitus with relief of the deafness in every case and cessation of the tinnitus in 6 cases—a percentage of 85.

Sculling for One-armed Men

Dr. PERCY TATCHELL writes: Experiments on the Thames have shown that it is feasible for a man who has lost an arm to row two sculls. The plan adopted is to connect the scull handles together with a strong hook and eye (see diagram). The user rows one oar



in the ordinary way, the other is a trailer, and dips and feathers in unison with the master oar. The leathers, well greased, draw in and out on the sills. Steering is effected by moving the hand to the side, thus lengthening one oar and shortening the other, the buttons having been removed. The eye should be on the sound side.

Ergot and Abortion

Dr. ARTHUR J. AMBROSE writes from Paignton: In the report on disciplinary inquiries made by the G.M.C., published in the *Supplement* of June 9 (p. 105), occurs the following statement: "He gave liquid extract of ergot and this failing he inserted an instrument." Years ago the late Dr. G. E. Herman, author of that classic *Difficult Labour*, also wrote a less-known work, *Diseases of Women*, in which he stated that ergot did not cause abortion. I attended many women in full-term labour who told me they had taken ergot in unsuccessful attempts to terminate pregnancy—so my experience coincides with Herman's. But apparently magistrates, coroners, expert pathologists, and the G.M.C. think differently, as I heard a London coroner and a distinguished pathologist concur in this opinion. Legally if anybody administers any drug with the intention of procuring abortion he is guilty of a felony; but if the drug be one that has been proved to be ineffective, surely it ought not to be included in the list of abortifacients, and I should like to hear the opinions of expert pharmacologists and gynaecologists on this subject. It is not generally known that salicylate of soda—although it has no action on the pregnant uterus—is extremely useful in cases of delayed menstruation, relieving the pain and anxiety of a patient who erroneously thinks she is pregnant by establishing the flow. Incidentally, sod. sal. relieves "after-pains."

Fluorine in Toothpaste

Capt. LINDSAY H. WALKER, S.A.M.C. (Transvaal), writes: In "Any Questions?" (March 10, p. 355) a question appeared under the heading "Fluorine in Toothpaste," which referred to a leading article on fluorine and dental caries (April 1, p. 461). The questioner queried the danger of mottled enamel appearing from excess fluorine, and the *Journal* commented on the fact that this does not occur after calcification of the teeth is complete. Surely the most important fact is that excessive fluorine after dental calcification is complete leads to precipitation of calcium salts in joints and tendons with eventual ankylosis, as has been demonstrated in this country among both European and Bantu subjects exposed to daily ingestion of fluorine in drinking-water. The article by L. Spira, "Some Epithelial Changes in Fluorosis" (*J. Hyg.*, Camb., 1944, **43**, 400), should surely cast some doubt on the advisability of adding fluorine to such an everyday article of "diet" as toothpaste, and perhaps also bring into question the proposal to add penicillin, or any other product (natural or otherwise) to toothpaste, throat tablets, etc.

Reviving the Newborn

Dr. A. P. GREEN (New Malden, Surrey) writes: When I was a student at University College Hospital some thirty years ago we had a most useful way of promoting breathing in newborn infants. The procedure was to dip the forefinger in brandy and insert it up the baby's rectum. The effect is quite dramatic.

Local Sulphonamide Therapy

Capt. P. K. RENSHAW, R.A.M.C., writes: With reference to your answer to a question on local sulphonamide therapy (June 9, p. 830), may I draw attention to the following articles which suggest methods of desensitization and prevention of sulphonamide sensitivity: Erskine, D., *Lancet*, 1942, **2**, 568; Tate, B. C., and Klorfajn, I., ibid., 1944, **2**, 553.

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HEARD AT HEADQUARTERS

This Week's A.R.M.

The Annual Representative Meeting this week in London has a light agenda, as was to be expected in view of the fact that the last Representative Meeting took place only a little more than seven months ago. After the experience of the last two or three years, to have only one hundred motions on the agenda paper, many of them formal and many others non-controversial, makes it seem like a holiday meeting. It is not easy to see how the proceedings can be extended over the two and a half days allotted to them, but light agendas are sometimes deceptive. At all events it will enable the business to go forward at a more leisurely pace than is possible when a harassed chairman has to find his way through some five hundred motions and to incur unjust strictures because, one motion having been disposed of, he has ruled that six others with only a slightly different shade of meaning must go with it.

Only some fifty of the motions are from Divisions and Branches. The first, from Paddington, is of some interest. It urges an approach to Government Departments and Parliament with a view to securing diplomatic representation of the medical profession through health attachés and counsellors at embassies and legations in foreign countries.

American Colleagues

The United States Forces are leaving this country, and their medical officers with them. A letter has been received by the Association from Major-Gen. P. R. Hawley. It is written from the European Theatre of Operations of the U.S. Army and speaks of the great regret with which our American visitors view their departure. He adds that one of the reasons for such regret is the breaking of the happy links which have been formed with the medical profession in Great Britain. Gen. Hawley says that it is his pleasant privilege as well as his urgent duty to express to the B.M.A. the deep appreciation of the medical officers "for all the courtesies extended to them by your splendid organization."

Their departure will be sincerely regretted by their British colleagues. The presence of American medical officers has been like a refreshing breeze at B.M.A. House, at the Royal Society of Medicine, and elsewhere. They have proved most companionable. In clinical and scientific meetings they have thrown their experience and ideas freely into the common pool. Many permanent friendships have been made, and the cause of Anglo-American unity has been greatly advanced by this most welcome of war invasions.

Professor R. M. F. Picken

A great loss will be sustained at headquarters if Prof. Picken adheres to his decision, following his appointment as acting provost of the Welsh National School of Medicine, to bring to an end his valuable work on the Association's Council and committees. He finds that his new office will prevent him from making the frequent journeys between Cardiff and London which his work for the Association has hitherto entailed. Prof. Picken has been a member of the Council since 1930. His work over many years for the Public Health Committee has been outstanding, and it is difficult to think of that committee without him in the chair. He has been a most valuable liaison officer between the Association and the Society of Medical Officers of Health, and although his own experience has been in the field of public health he has always shown an informed sympathy with the position of the general practitioner. His quiet voice in debate, in large assemblies and small committees, has carried great authority and has led to many wise decisions and perhaps prevented some unwise ones. It is to be hoped that even if his work for the Association has to be lessened there will not be so complete a withdrawal as that on which he has regretfully decided.

Purchase Tax on Doctors' Cars

Mr. Harold Nicolson recently called attention to the curious fact that one's wartime wardrobe has a tendency to fall to pieces all at once—not in sequence, one suit after another, but simultaneously. Something like that is happening with doctors' cars. Many of them, after enduring the strains of wartime practice, are getting almost beyond repair. One doctor would have been hard put to it if he had not been able to borrow a car from his patients. These old cars can no longer be offered in part exchange, and the cost of replacement is prohibitive.

The Secretary of the Association has lately written to the Treasury asking on behalf of the medical profession that the purchase tax on new cars supplied to doctors should be removed at the earliest possible moment. He reminds the Treasury that new cars can be supplied only against licence to purchase, and the high measure of priority accorded to medical men during the war is evidence that they are regarded as giving an essential public service. Alike in town and country, the roadworthy motor-car of the doctor is not a luxury but necessary equipment of his profession, without which he cannot perform the public service demanded of him. Until recently a large proportion of reconditioned ex-Service cars were allowed to doctors, but, following a decision of the Minister of War Transport, these are no longer available. Apart from the practitioner who has to replace his car, the position of the doctor returning from the Forces and establishing or re-establishing himself in general practice has to be considered. He will have enough calls upon his resources without having to buy a car at an artificially raised price. Certain trade vehicles are exempt from purchase tax, and it seems as if an equally good case could be made out for the extension of this concession to a vehicle which is a necessary part of an essential service.

Rehabilitation Facilities

The Rehabilitation Committee of the B.M.A. is getting into its stride. New members include two Scottish authorities on the subject—Brig. F. A. E. Crew and Dr. Thos. Ferguson—as well as Dr. H. M. C. Macaulay, of Middlesex. The first stage of the committee's work has been the compilation of memoranda on existing facilities and on rehabilitation from various aspects. These have been produced by members of the committee. The one on existing facilities is the work of the deputy chairman, Dr. Vaughan Jones, of Leeds; it is supplemented by a list of all the centres and clinics already established. It is surprising, when one thinks of the comparative newness of the subject, how extensive those facilities are. The Ministry of Health has set up 21 special orthopaedic centres for the physically disabled; half of these are permanent orthopaedic hospitals carrying on peacetime functions in addition to emergency work. Then there are about 60 long-stay fracture departments, and 200 short-stay ambulatory ones, and 12 neurosis centres under the E.M.S., and about 120 neurosis clinics. The committee has an important work to do, but few committees have started their task so well documented.

Consultation

To my story under this heading two weeks ago a reader adds the following: "My partner had occasion to send a child with a squint to the ophthalmic surgeon at the local infirmary. This correspondence took place: 'Dear R——. She squints.—Yours, A.' 'Dear A.——. She does!—Yours, R.'"

After July 30 the address of the Mid-Cheshire Division of the B.M.A. and Local Medical War Committee will be: Williams Deacon's Bank Chambers, The Downs, Altrincham. Telephone Altrincham 3785.

ferential injections. When seen after 7 days the wart has shrivelled in size and is of bluish-black colour. After 3 to 4 weeks it has completely disintegrated. If too much solution is used some may infiltrate below the wart or escape externally. In the former case a blister develops. This may cause slight discomfort on walking but has no effect on the ultimate result. The pain which most patients experience on walking is usually abolished by the injection. This method has also been successfully employed in cases of warts on the hands and fingers, including the flat warts which occur on the skin at the sides of the finger-nails. The mode of action of the injection may be due to any or all the following factors: (1) tissue necrosis of the wart, caused by the local toxic effect of the solution; (2) tissue necrosis of the wart by the disruptive pressure of the injection; (3) thrombosis of the wart's vasculature; (4) destruction of the causative virus by the antiseptic action of the solution. The successful use of other solutions is matter for research.

Chloroform Anaesthesia

Col. G. S. THOMSON, I.M.S.(ret.), writes: As I have only recently returned as, *en route*, specialist surgeon in charge of 797 "priority" evacuees, I am reading back numbers of your valuable *Journal*. In the issue for Feb. 19, 1944 (p. 263), are two letters on anaesthesia misadventure incriminating chloroform. The writers are young enough to omit all reference to India's magnificent Nizam of Hyderabad's Commission of Inquiry thereon. At the request and by the suggestion of Major Percy Benson, I.M.S., resident surgeon and medical adviser to the Nizam, Sir Lauder Brunton was invited to Hyderabad as chief investigator. The "open method" was in use successfully there for years; it involved no elaborate apparatus or technique: just a cone of sterile, stiff cardboard paper, one inch in diameter, open at its apex, with a 2-oz. plug of cotton-wool secured in position with a safety-pin. The anaesthetist kept a tongue forceps in the left lapel of his clean, white gown, poured one drachm of chloroform on the plug of wool, told the patient to count up to twenty and take deep breaths. In my 37½ years in India with 2,500 midwifery deliveries under the "open method" I lost only one European mother 5 hours after delivery due to embolism; she was a primipara, aged 25, of good physique, at full-term and had been six hours in labour. Chloroform enabled me to perform 106 suprapubic stone extractions with only one death—the 106th.

Acupuncture

Dr. T. STACEY WILSON (Birmingham) writes: In the reply given in the *Journal* of July 7 (p. 34) to a question about acupuncture no reference is made to the value of this method of treatment in certain cases of sciatica. Fifty years ago, when I was one of the honorary physicians at the Birmingham General Hospital, acupuncture of the sciatic nerve where it is palpable at the back of the thigh was a recognized method of giving relief to certain cases of sciatica. When the sciatic nerve is not only abnormally tender but can also be felt to be somewhat swollen and hard, there is a probability that the nerve sheath is distended with inflammatory exudation. In such circumstances the transfixion of the nerve with a large-size round acupuncture needle will allow the fluid to escape and give relief from pain. It was usual to allow the needle to remain *in situ* for 15 or 20 minutes in order to lessen the rapidity with which the opening in the nerve sheath would close after the withdrawal of the needle. When an inch or more of the sciatic nerve was felt to be swollen and hard two needles could be inserted three-quarters of an inch apart instead of only one. The relief given was so definite that if the pain recurred within a day or two the patient would ask for a repetition of the treatment. This method of treating sciatica had the advantage of making clear a case of malingering, for such a patient would not run the risk of having a repetition of the treatment.

Resuscitation after Drowning

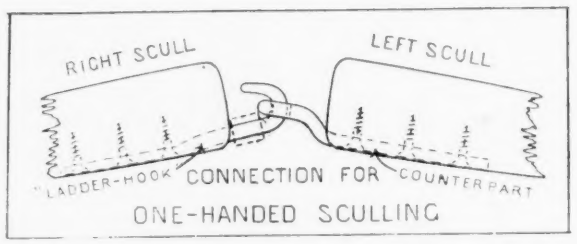
Dr. JOHN YATES (Cockfosters, Herts), writes: I have come across the following passage in *The Vicar of Morwenstow*, by S. Baring-Gould (published 1876). It describes the attempted resuscitation of a member of a shipwrecked crew. "We succeeded in getting hold of him at last, and brought him ashore. Unfortunately there was no doctor by, or any one who was experienced in dealing with cases of drowning. We did as best we knew, following the old usage of throwing him across a barrel." Is this a method of artificial respiration by rocking?

Relief of Tinnitus

Dr. G. C. CATHCART (London, W.1) writes: In the *Journal* of June 30 (p. 934) a correspondent asks a question concerning the treatment for relief of "noises in the head." The answer given was to try a course of short-wave diathermy coupled with the use of nicotinic acid and the usual sedatives. I have a short-wave diathermy machine and have given it a fair trial with no good results. I have also tried nicotinic acid and the usual sedatives with equally no good results. In the 2nd edition of my book, *The Treatment of Chronic Deafness by the Zünd-Burguet Electrophonoide Method*, out of 665 cases of deafness there were 230 cases of tinnitus or "noises in the head," of whom 158, or 68.7%, improved after treatment. In 1934 I published an account (*Proc. roy. Soc. Med.*, **27**, 897) of 7 cases of deafness and tinnitus with relief of the deafness in every case and cessation of the tinnitus in 6 cases—a percentage of 85.

Sculling for One-armed Men

Dr. PERCY TATCHELL writes: Experiments on the Thames have shown that it is feasible for a man who has lost an arm to row two sculls. The plan adopted is to connect the scull handles together with a strong hook and eye (see diagram). The user rows one oar



in the ordinary way, the other is a trailer, and dips and feathers in unison with the master oar. The leathers, well greased, draw in and out on the sills. Steering is effected by moving the hand to the side, thus lengthening one oar and shortening the other, the buttons having been removed. The eye should be on the sound side.

Ergot and Abortion

Dr. ARTHUR J. AMBROSE writes from Paignton: In the report on disciplinary inquiries made by the G.M.C., published in the *Supplement* of June 9 (p. 105), occurs the following statement: "He gave liquid extract of ergot and this failing he inserted an instrument." Years ago the late Dr. G. E. Herman, author of that classic *Difficult Labour*, also wrote a less-known work, *Diseases of Women*, in which he stated that ergot did not cause abortion. I attended many women in full-term labour who told me they had taken ergot in unsuccessful attempts to terminate pregnancy—so my experience coincides with Herman's. But apparently magistrates, coroners, expert pathologists, and the G.M.C. think differently, as I heard a London coroner and a distinguished pathologist concur in this opinion. Legally if anybody administers any drug with the intention of procuring abortion he is guilty of a felony; but if the drug be one that has been proved to be ineffective, surely it ought not to be included in the list of abortifacients, and I should like to hear the opinions of expert pharmacologists and gynaecologists on this subject. It is not generally known that salicylate of soda—although it has no action on the pregnant uterus—is extremely useful in cases of delayed menstruation, relieving the pain and anxiety of a patient who erroneously thinks she is pregnant by establishing the flow. Incidentally, sod. sal. relieves "after-pains."

Fluorine in Toothpaste

Capt. LINDSAY H. WALKER, S.A.M.C. (Transvaal), writes: In "Any Questions?" (March 10, p. 355) a question appeared under the heading "Fluorine in Toothpaste," which referred to a leading article on fluorine and dental caries (April 1, p. 461). The questioner queried the danger of mottled enamel appearing from excess fluorine, and the *Journal* commented on the fact that this does not occur after calcification of the teeth is complete. Surely the most important fact is that excessive fluorine after dental calcification is complete leads to precipitation of calcium salts in joints and tendons with eventual ankylosis, as has been demonstrated in this country among both European and Bantu subjects exposed to daily ingestion of fluorine in drinking-water. The article by L. Spira, "Some Epithelial Changes in Fluorosis" (*J. Hyg.*, Camb., 1944, **43**, 400), should surely cast some doubt on the advisability of adding fluorine to such an everyday article of "diet" as toothpaste, and perhaps also bring into question the proposal to add penicillin, or any other product (natural or otherwise) to toothpaste, throat tablets, etc.

Reviving the Newborn

Dr. A. P. GREEN (New Malden, Surrey) writes: When I was a student at University College Hospital some thirty years ago we had a most useful way of promoting breathing in newborn infants. The procedure was to dip the forefinger in brandy and insert it up the baby's rectum. The effect is quite dramatic.

Local Sulphonamide Therapy

Capt. P. K. RENSHAW, R.A.M.C., writes: With reference to your answer to a question on local sulphonamide therapy (June 9, p. 830), may I draw attention to the following articles which suggest methods of desensitization and prevention of sulphonamide sensitivity: Erskine, D., *Lancet*, 1942, **2**, 568; Tate, B. C., and Klorfajn, I., ibid., 1944, **2**, 553.